

EXHIBIT 14

UNITED STATES INTERNATIONAL TRADE COMMISSION

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In the Matter of

Investigation No.

CERTAIN LIGHT-BASED PHYSIOLOGICAL

337-TA-1276

MEASUREMENT DEVICES AND COMPONENTS

THEREOF

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REVISED AND CORRECTED TRANSCRIPT

OPEN SESSIONS

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1 UNITED STATES INTERNATIONAL TRADE COMMISSION

2 Washington, D.C.

3 Before the Honorable Monica Bhattacharyya

4 Administrative Law Judge

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7 In the Matter of Investigation No.

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9 CERTAIN LIGHT-BASED PHYSIOLOGICAL 337-TA-1276

10 MEASUREMENT DEVICES AND COMPONENTS

11 THEREOF

12 -----x

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15 EVIDENTIARY HEARING

16 Monday, June 6, 2022

17 Volume I

18

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20 The parties met via remote videoconferencing
21 pursuant to notice of the Administrative Law Judge at 9:30
22 a.m. Eastern.

23

24

25 Reported by: Linda S. Kinkade RDR CRR RMR RPR CSR

1 A P P E A R A N C E S:

2 [All parties appeared via remote videoconferencing and/or
3 telephonically.]

4

5 Counsel for Complainants Masimo Corporation and Cercacor
6 Laboratories, Inc.:

7 KNOBBE, MARTENS, OLSON & BEAR, LLP

8 2040 Main Street, Fourteenth Floor

9 Irvine, California 92614

10 (949) 760-0404

11 Stephen C. Jensen, Esq.

12 Joseph R. Re, Esq.

13 Sheila N. Swaroop, Esq.

14 Irfan Lateef, Esq.

15

16 KNOBBE, MARTENS, OLSON & BEAR, LLP

17 1717 Pennsylvania Avenue, NW, Suite 900

18 Washington, DC 20006

19 (202) 640-6400

20 Jonathan E. Bachand, Esq.

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Complainants Masimo Corporation and Cercacor
4 Laboratories, Inc.:

5 KNOBBE, MARTENS, OLSON & BEAR, LLP

6 925 4th Avenue, Suite 2500

7 Seattle, Washington 98104

8 (206) 405-2000

9 Carol Pitzel Cruz, Esq.

10

11

12 Counsel for Respondent Apple Inc.:

13 WILMER CUTLER PICKERING HALE AND DORR LLP

14 1875 Pennsylvania Avenue, NW

15 Washington, DC 20006

16 (202) 663-6000

17 Michael D. Esch, Esq.

18 David L. Cavanaugh, Esq.

19

20

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 2600 El Camino Real, Suite 400

6 Palo Alto, California 94306

7 (650) 858-6000

8 Mark D. Selwyn, Esq.

9

10 WILMER CUTLER PICKERING HALE AND DORR LLP

11 60 State Street

12 Boston, Massachusetts 02109

13 (617) 526-6000

14 Joseph J. Mueller, Esq.

15 Sarah R. Frazier, Esq.

16

17 WILMER CUTLER PICKERING HALE AND DORR LLP

18 1225 17th Street, Suite 2600

19 Denver, Colorado 80202

20 (720) 598-3459

21 Ravi S. Deol, Esq.

22

23

24 *** Index appears at end of transcript ***

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1 P R O C E E D I N G S

2 (In session at 9:30 a.m.)

3 JUDGE BHATTACHARYYA: Good morning everyone.

4 This is Monica Bhattacharyya, Presiding ALJ. We're here for
5 the evidentiary hearing in certain light-based physiological
6 measurement devices and components thereof, Investigation
7 No. 337-TA-1276. With me is my Attorney Advisor Ted Jou.

8 Could counsel please enter their appearances.

9 MS. SWAROOP: Good morning, Your Honor. Sheila
10 Swaroop, counsel for Complainants Masimo and Cercacor.

11 JUDGE BHATTACHARYYA: Good morning. I believe
12 you're on mute.

13 MR. MUELLER: I'm sorry, Your Honor. Good
14 morning. Joe Mueller on behalf of Respondent Apple.

15 JUDGE BHATTACHARYYA: Good morning. We're
16 starting out on the public record.

17 As we discussed last week, there should be a
18 designated person for both Complainants and Respondent who
19 can confirm when we're ready to go on the confidential
20 record at certain points during the hearing.

21 Ms. Swaroop, who is the designated representative
22 for Masimo?

23 MS. SWAROOP: Yes, Your Honor, I can make those
24 representations today.

25 JUDGE BHATTACHARYYA: Thank you. Mr. Mueller,

1 for Apple?

2 MR. MUELLER: Yes, Your Honor. Sarah Frazier
3 will be our designated representative on that issue.

4 JUDGE BHATTACHARYYA: Thank you. We do have some
5 members of the public here, including, there's a Call In
6 User 1. I'd ask call in User 1 to mute their line, if it's
7 not muted already, and also at some point when they call in
8 to identify themselves as a member of the public.

9 There's also a person on the line, Arjun
10 Jaikumar. I'd ask that that person also indicate if they
11 are a member of the public or affiliated with Respondent or
12 Complainants. We don't have to hold up the hearing for
13 that. At the moment I'll just assume that both those people
14 are members of the public.

15 (Clarification by reporter.)

16 JUDGE BHATTACHARYYA: All right. Thank you. I
17 wanted to follow up on a couple of items from our
18 pre-hearing conference last week. There was a question
19 about deposition designations. As I believe you received an
20 email last week from my attorney advisor, I'm not going to
21 require that all deposition designations that have been
22 discussed be admitted into evidence. Each party should move
23 to admit their deposition designations by the close of their
24 case, whether it's their case-in-chief or...

25 Any questions about that?

1 MR. MUELLER: No, Your Honor. Thank you.

2 MS. SWAROOP: Thank you, Your Honor.

3 JUDGE BHATTACHARYYA: The other item that was
4 discussed last week had to do with sequestration. As I also
5 believe you heard from my Attorney Advisor, each party will
6 be permitted a corporate representative designated by that
7 party to not be sequestered. Are there any questions about
8 that fact?

9 MR. MUELLER: Does the sequestration apply before
10 opening statements or after opening statements? There was
11 some email correspondence on this. We'll, of course, do
12 whatever Your Honor directs.

13 We have had in most of our cases actually the
14 sequestration kicks in before the witnesses begin to testify
15 as opposed to the opening statements, but whatever
16 Your Honor's preference is, of course we'll strictly adhere
17 to that.

18 JUDGE BHATTACHARYYA: Ms. Swaroop, do you have a
19 preference?

20 MS. SWAROOP: Yes, Your Honor. Masimo would
21 prefer that the sequestration begin with opening statements,
22 and I think, as we had provided to Your Honor's Attorney
23 Advisor with some authority, suggesting that if witness
24 testimony is going to be referred to in the opening, that
25 the sequestration should go into effect at that time. And I

1 plan to refer to witness testimony in my opening, and I
2 understand from Apple's slides that they intend to as well.

3 JUDGE BHATTACHARYYA: Mr. Mueller, is that
4 correct, does Apple intend to refer to the anticipated
5 content of witness testimony?

6 MR. MUELLER: At a very high level, Your Honor.
7 We're not going to get into any of the details of what any
8 particular witness will say.

9 JUDGE BHATTACHARYYA: The sequestration will go
10 into effect for the opening statements as well.

11 MR. MUELLER: Your Honor, I would just note for
12 the record that our corporate designee from the fact witness
13 group is Dr. Paul Mannheimer.

14 JUDGE BHATTACHARYYA: Thank you.

15 And Ms. Swaroop, I assume it's Mr. Kiani, as you
16 indicated last week?

17 MS. SWAROOP: Yes, it is, Your Honor.

18 JUDGE BHATTACHARYYA: Is there anything further
19 before we proceed with opening statements?

20 MR. MUELLER: Yes, Your Honor, two quick things.
21 To the extent that Masimo does attempt to introduce certain
22 deposition designations today, we do have some outstanding
23 objections. We can take those up later if it more
24 convenient for Your Honor.

25 Also, on the witness list for today, although I

1 suspect we won't reach him, is Mr. Scruggs. We have some
2 pretty significant objections to the anticipated testimony
3 from Mr. Scruggs.

4 Again, it may be easier just to take those up
5 later today, particularly in light of the fact that we may
6 not reach him today, but we're happy to discuss it now if
7 Your Honor would prefer.

8 JUDGE BHATTACHARYYA: I would appreciate a
9 preview of the issues that are going to come up, but rather
10 than take away time from the hearing, if you could send an
11 email copying Masimo's counsel just summarizing what you
12 believe at a high level the disputes are going to be, that
13 would be helpful.

14 MR. MUELLER: Will do. Thank you, Your Honor.

15 JUDGE BHATTACHARYYA: Thank you. Shall we
16 proceed with opening statements?

17 MS. SWAROOP: Your Honor, Complainants are ready
18 to begin.

19 JUDGE BHATTACHARYYA: Okay. You may proceed.

20 OPENING STATEMENT BY COMPLAINANTS

21 MS. SWAROOP: Good morning, Your Honor. Masimo
22 and our team here in California are happy to be here to
23 begin this evidentiary hearing. We're looking forward to
24 presenting our case to you and to having you hear from our
25 witnesses and consider our evidence.

1 This ITC investigation and the five patents at
2 issue mean a lot to Masimo. These patents resulted from the
3 ingenuity of many Masimo and Cercacor engineers, some of
4 whom you will hear from.

5 These inventions relate to three areas of
6 physiological monitoring. The first is a sensor design for
7 light-based measurements that was not only unique but went
8 against conventional thinking about how to obtain reliable
9 measurements. You'll hear that this design actually
10 resulted in improved measurements.

11 The second is a novel sensor design with features
12 to project light into tissue to allow more of the tissue to
13 be irradiated which increases the relevant information in
14 the detected signals.

15 Your Honor, I apologize. There appears to be
16 some sound or some background. If the person could mute,
17 that would be appreciated. Thank you.

18 And the third invention is a novel accuracy
19 enhancement system that introduces a thermal mass that
20 stabilizes and normalizes temperature to allow a single
21 thermistor to be used to correlate to the temperature of
22 multiple LEDs.

23 This is done to compensate for measurement errors
24 resulting from subtle changes to the LED operating
25 characteristics.

1 Now one of the parameters we will discuss
2 throughout the hearing is a noninvasive measurement of
3 oxygen saturation of a person's blood. The evidence will
4 show the challenges of obtaining reliable oxygen saturation
5 measurements from a person's wrist.

6 This investigation presents very important issues
7 affecting Masimo's domestic industry, and we appreciate your
8 efforts to carefully consider the issues here.

9 I'd like to start first with introducing you to
10 Masimo. The evidence will show that Masimo is a pioneer in
11 the area of noninvasive monitoring of physiological
12 parameters. You'll hear from our first witness, Joe Kiani,
13 about Masimo's history of innovation.

14 Mr. Kiani will explain how he started Masimo in
15 1989 to solve a bane of pulse oximeter measurements,
16 measuring through motion and low blood flow. You will hear
17 how the innovations developed at Masimo revolutionized
18 noninvasive monitoring.

19 And if we could go to our first slide here, which
20 is on the screen.

21 The evidence will show that Masimo developed and
22 introduced many innovative products in the professional care
23 settings and that Masimo consumer presence began to grow
24 many years ago.

25 The timeline here identifies various

1 medical-grade, consumer products that Masimo has introduced
2 throughout the years. You will hear about Masimo's iSpO2,
3 the first consumer pulse oximeter for the Apple iPhone that
4 Apple itself carried in the 2012 time period.

5 You will hear about Masimo's other consumer
6 products including the Masimo W1 Watch that was released in
7 2021.

8 In addition to being Masimo's founder and CEO,
9 Mr. Kiani is also an inventor on three of the five patents
10 at issue in this investigation.

11 If we could go to our next slide.

12 We refer to these as the Multi-Detector Patents
13 and they are part of the '501, '502, and '648 patent group.
14 You will hear from Mr. Kiani about this invention.

15 The evidence will show that the claimed sensor
16 design, which has a convex protrusion that covers all of the
17 detectors and deforms the skin, was completely
18 counterintuitive. These patents also claim specific
19 structures of the sensor that minimize the amount of light
20 that goes directly from the LEDs to the detectors without
21 interacting with the tissue.

22 Our next slide here, we have a figure from the
23 Multi-Detector Patents. This is Fig. 3C that Mr. Kiani will
24 talk about. And you can see here we have a sensor, and
25 there's a protrusion that's labeled as element 305, and you

1 can see a series of four windows or openings that are
2 labeled as 320, 321, 322, and 323.

3 The photodetectors are below those openings and
4 receive light from the emitters. The patent also explains
5 that these windows can include shielding to reduce noise
6 from ambient light.

7 You will hear that this invention came about when
8 Masimo was researching how to obtain better light-based
9 signals for very difficult and more sensitive noninvasive
10 physiological parameters, such as total hemoglobin, carbon
11 monoxide, and even glucose.

12 In addition to giving better measurements for
13 more difficult parameters, you will hear that this patented
14 sensor design also improved light-based measurements in more
15 difficult sites.

16 The next patent in this investigation is the '745
17 patent, which you'll hear referred to as the light-shaping
18 patent. You'll hear from Ammar Al-Ali, who is the inventor
19 on this patent, and Mr. Al-Ali will explain his invention.

20 If we go to our next figure.

21 What we see here is Fig. 7A from the '745 patent,
22 which shows one embodiment of the invention. And you can
23 see here we have an LED that's shaded in red at the top
24 there, and then there's a light diffuser that spreads out
25 and can also shape the light so that more tissue is

1 irradiated before it reaches the photodetector. The
2 photodetector is shown there in blue as element 710.

3 There's also light block that's shown as item 706
4 in green that's between the LEDs and the photodetector.

5 The evidence will show the -- this improved the
6 measurement particularly on more difficult sites.

7 The third inventor you'll hear from is Mohamed
8 Diab. He joined Mr. Kiani to start Masimo. Mr. Diab is an
9 inventor on the '127 patent, which we refer to as the
10 temperature patent.

11 Mr. Diab will explain how this patent allowed for
12 the measurement of parameters that no other company has been
13 able to measure. This patent introduced using a thermal
14 mass for the LED package and the sensor that stabilizes and
15 normalizes temperature, so that a thermistor can be used to
16 correlate to the temperature of multiple LEDs and, in turn,
17 correlate to the changes in wavelength of emitted light.

18 The basics of this are shown in our next slide,
19 which include Figs. 12 and 14 from the '127 patent.

20 What we see here on Fig. 12 on the left is a
21 diagram of the emitter substrate, and it shows a thermal
22 mass in the middle with multiple LEDs thermally coupled to
23 that mass. A temperature sensor, you see that on the right,
24 is also shown thermally coupled to the thermal mass.

25 The temperature sensor measures the temperature

1 of the thermal mass and uses that to estimate all of the
2 operating wavelengths of the LEDs.

3 Fig. 14, which is on the right, from this patent,
4 illustrates one example of a PC board that includes
5 metallized layers that act as a thermal mass so that the
6 measurement by the temperature sensors can provide
7 meaningful information about the operating wavelengths of
8 the LED.

9 The evidence will show that this feature results
10 in increased accuracy, because the measurement of
11 physiological parameters depends on the particular
12 wavelength of the LEDs.

13 The inventors pursued this to help them measure
14 new physiological parameters that are difficult to obtain.
15 This technology is used in Masimo's rainbow« sensors, which
16 measure a variety of parameters with light-based
17 measurements.

18 You'll also hear from several witnesses
19 about Masimo's extensive activities in the United States to
20 use these three patent groups in its products. For the
21 Multi-Detector Patents and the light-shaping patent, the
22 evidence will show Masimo's efforts in the United States to
23 design, develop, and manufacture the Masimo Watch.

24 You will hear from Mr. Kiani, Mr. Al-Ali and
25 Bilal Muhsin, the CEO, about Masimo's activities in

1 developing and launching the Masimo Watch that is
2 commercially called W1.

3 You'll hear about the details in the Masimo Watch
4 project from Stephen Scruggs, an engineer at Masimo who,
5 along with others, designed and developed the watches we are
6 presenting for the technical prong requirement.

7 The evidence will show that this has been an
8 ongoing project for years. Masimo's design and development
9 activities have taken place in the United States, so that
10 Masimo could develop a medical-grade product that delivers
11 reliable measurements. This is in contrast with other pulse
12 oximeters that are not reliable.

13 Now my next slide is going to include Masimo
14 confidential business information. So I just want to make
15 that clear so that we can have the appropriate people leave
16 the Webex meeting, and that would include Apple's corporate
17 representative.

18 I apologize. Yes, that would include Apple's
19 corporate representative as well.

20 (Whereupon, the hearing proceeded in confidential
21 session.)

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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: Moving back to the public
4 record.

5 MS. SWAROOP: I'd now like to discuss patent
6 validity with respect to the Multi-Detector Patents.

7 Now we don't know exactly what Apple's validity
8 defense will be and what exactly Apple will present to you,
9 and that's because Apple's pre-hearing brief for the five
10 claims in this group includes dozens of references for
11 background and for motivation to combine, and Apple's
12 invalidity grounds uses a combination of numerous
13 references.

14 So we will see the reveal along with you when
15 Apple decides to finally unveil what the bases are for its
16 invalidity defense.

17 The best we can discern is that Apple now appears
18 to be relying on two primary references in its combinations.
19 One, based on a patent that we refer to as Lumidigm, and one
20 based on foam sensor heads from a student project at Kansas
21 State.

22 So let's talk about Lumidigm first. The evidence
23 will show that Lumidigm's focus was obtaining a spectral
24 signature across a band of wavelengths to identify the
25 wearer. Lumidigm then provides a wish list of wide-ranging

1 use cases that range from fruit ripeness, identifying
2 counterfeit documents, oxygenation, a mood meter, a lie
3 detector, used as a TV remote, a barcode scanner, a smoke
4 detector, a guitar tuner, an alcohol monitor, and more
5 unrelated wishes.

6 For Kansas State, the evidence will show that an
7 undergraduate student following conventional wisdom designed
8 a basic sensor for a summer project. The foam sensor head
9 lacked the unrecognized benefit of the convex protrusion
10 that we talked about earlier. It merely conformed to and
11 did not disturb the tissue. Also, it was never
12 commercialized or developed beyond an undergraduate
13 student's summer project.

14 When Apple does unveil its invalidity combinations
15 based on Lumidigm or the Kansas State student project. You
16 will hear from our expert why the references they choose to
17 present to you are missing fundamental features of the
18 claims and why the combinations would not have been obvious
19 and would still be missing claimed features.

20 Apple's own evidence will also support the
21 nonobviousness of the claimed sensor configuration.

22 Another defense you may hear from Apple on is an
23 assertion that Masimo's patents are somehow unenforceable
24 due to prosecution laches. The publicly available
25 prosecution history of this patent family refutes that

1 defense and shows the activity Masimo took to move its
2 patents toward issuance. You will hear no expert from Apple
3 testify that the record of prosecution showed any kind of
4 unreasonable delay by Masimo.

5 Apple's pre-hearing brief also does not identify
6 any Apple witnesses who will speak about any prejudice that
7 Apple has suffered as a result of any alleged delay.

8 Apple's opening slides include a timeline
9 labeling various time periods as a delay, but that simply
10 ignores the public record of the prosecution history that
11 actually was taking place during that time period.

12 And now I'd like to turn to the light-shaping
13 patent and the evidence there. As that patent, as I had
14 previewed earlier, this patent changes the shape of light
15 from the detector so that it irradiates more of the tissue
16 and improves overlap in the area being measured.

17 The evidence will show that Apple implemented
18 this feature in the infringing Series 6 and later watches
19 with its MLA lens.

20 Masimo will present tests of the infringing
21 watches that show that light entering the Apple MLA lens is
22 a different shape from the light that exits the MLA lens.

23 We can go to our next --

24 MR. MUELLER: If we could go on the confidential
25 record, please.

1 MS. SWAROOP: Your Honor, this is not --

2 MR. MUELLER: I apologize for interrupting. I
3 just want to be careful about going on the Apple
4 confidential record for any discussion of the technical
5 details of the Apple products.

6 MS. SWAROOP: Your Honor, I plan to discuss
7 testing that was conducted by Masimo. This is not Apple
8 confidential information and was not identified as
9 containing Apple confidential information in our discussion
10 over these slides.

11 MR. MUELLER: I'll take Ms. Swaroop's word for
12 it, but to the extent there's oral discussion that's going
13 to move into the details of the products, we would ask that
14 we go on the Apple confidential record, and I believe there
15 is a slide coming up soon that will also require we go on
16 that record.

17 JUDGE BHATTACHARYYA: Ms. Swaroop, do you know
18 what Mr. Mueller is referring to?

19 MS. SWAROOP: I do, Your Honor. It's related to
20 the '127 patent, and I plan to go on the confidential record
21 for that portion.

22 This particular portion is information that is
23 not confidential to Apple, and I plan to discuss the test
24 results on our slide, which Apple has not identified as
25 containing any Apple confidential information.

1 MR. MUELLER: Just that, Your Honor, we have no
2 objection. I just want to be careful that, if it goes
3 beyond that, we move on the confidential record.

4 JUDGE BHATTACHARYYA: You may proceed,
5 Ms. Swaroop.

6 MS. SWAROOP: Thank you, Your Honor.

7 If we could go to our slide here.

8 This slide shows light-shaping testing of the
9 Apple Watch that was done in this investigation. And you
10 can see here that there were three different LEDs that were
11 tested: the red, the green, and the infrared in the third
12 row.

13 And so in these tests Masimo obtained images of
14 the light as it exited the LED, images when the light
15 entered the MLA lens, and that's what we see in the second
16 column as the light -- as it enters the MLA lens, and then
17 the third column we see what the light looks like after it
18 has exited the MLA lens. And so that's the third column.

19 And the evidence will show, if you look at the
20 second column and the third column, that there's a change in
21 shape, when we go to the second column, before the light
22 enters the MLA, and the third column, after the light has
23 exited the MLA. And so this change in shape, we believe,
24 confirms Apple's infringement.

25 An the issue of validity, Apple has said it will

1 present an invalidity defense based upon its original watch,
2 the Series 0. But Apple's evidence of this watch is not
3 corroborated. Apple's opening slides will show you dates
4 and images of the Series 0 watch that appear nowhere in the
5 exhibits identified for those slides.

6 Apple's expert also relies on documents that do
7 not corroborate the prior art status or structure of that
8 watch. But, regardless, the evidence will show this watch
9 lacked the ability to measure oxygen saturation.

10 The evidence will also show that Apple's other
11 references for validity, such as Iwamiya, did not disclose
12 use for measuring oxygen saturation.

13 And Sarantos, the evidence will show that that
14 reference is discussing a configuration for use with
15 irrelevant wavelengths of light that are not used for
16 measuring oxygen saturation.

17 Similar to the Multi-Detector Patents, Apple has
18 claimed it will present a defense of prosecution laches,
19 and, again, the publicly available prosecution history of
20 this patent family refutes that defense and shows the
21 activities Masimo took to move its patents towards issuance.

22 Again, Apple has identified no expert on this
23 issue, and no witness that will speak to any prejudice Apple
24 has faced.

25 I now will be addressing Apple confidential

1 business information in addressing the '127 patent, so,
2 Mr. Kiani will need to leave the room.

3 JUDGE BHATTACHARYYA: We're moving on to the
4 Apple confidential record.

5 (Whereupon, the hearing proceeded in confidential
6 session.)

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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: We're moving back to the
4 public record. You may proceed.

5 MS. SWAROOP: Thank you, Your Honor.

6 Apple's validity defense for the '127 temperature
7 patent is based on obviousness, but the evidence will show
8 that no combination of prior art shows a thermal mass
9 thermally coupled to the LEDs and the thermistors so that
10 the thermistor's temperature measurement can meaningfully
11 estimate operating wavelengths of the LEDs.

12 Now you're going to see in Apple's slides a
13 mention of a Scarlett reference in connection with the
14 thermal mass claim language for the '127 patent. But
15 Scarlett is not one of the references Apple is relying upon
16 for its obviousness grounds. It's merely one of the many
17 state-of-the-art references that appear throughout Apple's
18 pre-hearing brief.

19 You will also hear evidence of commercial
20 success, awards for Masimo's rainbow« technology, and
21 teaching away in the prior art, all of which support
22 nonobviousness of this invention.

23 The last point I'd like to address is the remedy
24 Masimo is seeking for Apple's activities. Masimo is seeking
25 both a limited exclusion order and a cease and desist order

1 against the Apple Watch Series 6, Series 7, and any Next
2 Generation Apple Watch that includes these same light-based
3 physiological monitoring features that infringe Masimo's
4 patents.

5 However, what is very important to note here is
6 that Masimo is not seeking exclusion of every Apple Watch.
7 As we will show, Apple has sold other watches with different
8 back surfaces before it introduced the sensor design and the
9 blood oxygen feature that began with Series 6. We're not
10 seeking any remedy in this investigation regarding those
11 other watches.

12 Apple has sold tens of millions of those other
13 watches, and the remedies we are seeking here would not
14 impact Apple's ability to import and sell those watches.

15 Our ask is not a prohibition on Apple's ability
16 to import tens of millions of watches from its factories in
17 Asia if it chooses to do so. Rather, Apple should not be
18 allowed to import and distribute watches with the pulse
19 oximetry sensor of the Series 6, Series 7, and future
20 watches, because those watches infringe the Masimo and
21 Cercacor patents that protect our domestic industry, and
22 that is a violation of Section 337.

23 We welcome the opportunity to present our
24 evidence to you. Thank you, Your Honor.

25 JUDGE BHATTACHARYYA: Thank you.

1 Mr. Mueller, you may proceed.

2 OPENING STATEMENT BY RESPONDENT

3 MR. MUELLER: Thank you very much, Your Honor.

4 Good morning, and thank you again for your time and
5 consideration at this hearing.

6 Let me begin by noting some of the folks who will
7 also be presenting witnesses over the course of this
8 hearing. They include my colleagues Jonathan Cox, Sarah
9 Frazier, Nina Garcia, Derek Gosma, Mark Selwyn, and Cindy
10 Vreeland.

11 On behalf of all of them and also the folks who
12 are helping us behind the scenes here, and, most
13 importantly, on behalf of our client, Apple, we do want to
14 thank you for your time and your consideration. Apple
15 respects this agency and this process, and we're going to do
16 our best over the course of the hearing to present the best
17 possible evidence on the issues before Your Honor.

18 Let me also show you some pictures right now of
19 the Apple engineers who will testify live over the course of
20 this hearing.

21 Mr. Brian Land is the head. He is the Chief of
22 the Health Sensing Hardware Group within Apple. He has been
23 working at Apple for over 15 years, and, as I mentioned, he
24 bears lead responsibility for developing the health sensing
25 hardware within the Apple Watch.

1 Along with Mr. Land we have five of his
2 colleagues. Dr. Paul Mannheimer, who, as I noted, will be
3 our corporate designee at this hearing. Dr. Vivek
4 Venugopal, Dr. Saahil Mehra, Dr. Steve Waydo, and Dr. Ueyn
5 Block, five Ph.D.s, and the gentleman who runs the group,
6 Mr. Land.

7 Why have we brought these six engineers to
8 testify before Your Honor? Well, the first reason, of
9 course, is that Apple does respect this agency and this
10 process, and the second reason is Apple firmly believes that
11 the facts in this case are decidedly on its side and wants
12 to provide Your Honor with the best possible evidence of all
13 the issues Your Honor needs to decide in this investigation.

14 Now let me take down their pictures for just a
15 moment and turn a little bit to the issues at the heart of
16 this case.

17 As Ms. Swaroop mentioned, Masimo and Cercacor,
18 who I'll refer to for simplicity as Masimo, are requesting
19 an import ban on the Series 6 and Series 7 watches. Now
20 Ms. Swaroop just suggested that it may not be that big of an
21 impingement on Apple because there are other watch models.
22 In fact, these are the two leading and most advanced models
23 of Apple Watch, and Masimo is trying to sever the supply
24 chain of those devices to the United States.

25 Now the agency has the power to effect that

1 supply chain cut, but the question is, is there a proper
2 basis for doing so in this case. And we believe the
3 evidence will conclusively show there is no proper basis for
4 an import ban of any type, let alone against these
5 particular devices.

6 In fact, this case is being used at Masimo for an
7 improper legal purpose and an improper business purpose.
8 And let me explain what I mean.

9 Back in 2020 Masimo filed a District Court action
10 in the Central District of California against Apple alleging
11 trade secret misappropriation and patent infringement. That
12 case is proceeding today.

13 Now there's very significant problems with the
14 claims in that case. I'm not going into the details now,
15 but we believe there are profound problems with the trade
16 secret allegations, the patent claims have been stayed
17 pending IPR proceedings where literally dozens of claims
18 have been invalidated by the Patent Office during the IPR
19 proceedings.

20 Those merits issues for another day for another
21 court, but I note that, because of the relevance to this
22 particular investigation, is that it was initiated
23 explicitly because of Masimo's dissatisfaction with the pace
24 of the District Court case.

25 And, Your Honor, respectfully, we believe that

1 initiating an investigation on those grounds is not a proper
2 purpose, and, moreover, it led to Masimo prematurely filing
3 this case, its complaint in this case, long before any
4 mature domestic industry existed for at least four of the
5 five patents-in-suit, and for all five of them we believe
6 there's no domestic industry meriting an exclusion order in
7 this case.

8 Now from a business perspective, there too we
9 find that the case that's being brought for what we believe
10 to be an improper purpose. For four of the five patents in
11 this case the alleged domestic industry product is the
12 so-called Masimo Watch, which has recently been given by
13 Masimo the name W1.

14 That watch cannot be purchased, cannot be
15 purchased, in any store in the U.S. today, let alone at the
16 time when the complaint was filed.

17 Now as Your Honor knows from earlier briefing in
18 this case, we believe the law is clear that, in the absence
19 of special circumstance, the relevant time for assessing
20 whether there's a sufficient domestic industry is the date
21 of filing of the complaint. And we believe the evidence
22 will show beyond a shadow of a doubt there was no legitimate
23 domestic industry as of that date, nor is there one today,
24 with respect to the Masimo Watch.

25 And what we believe is happening is Masimo is

1 trying to clear a path for a hoped-for aspirational product,
2 clear a path by banning the import to the U.S. of the
3 leading Apple Watch models.

4 Now, again, there's just no proper basis for
5 doing that. And you can see, as you get into the substance
6 of the patent issues, what we believe the evidence will show
7 to Your Honor is that, with all of the patents-in-suit,
8 Masimo has been trying to stretch disclosures and written
9 descriptions that were directed to clinical products of the
10 type that Masimo has focused on historically. They have had
11 some consumer products, but far limited offerings as
12 compared to their clinical products.

13 These patent disclosures were drafted in the
14 context of their historical focus on clinical products, and
15 they have tried to stretch them by drafting claims to cover
16 consumer products like the Apple Watch.

17 Now the reason why that's significant is the
18 clinical setting is quite different than the consumer
19 wearable setting. In the consumer wearable setting, as you
20 will hear from the six Apple engineers who will testify to
21 Your Honor, there are very special engineering challenges
22 that are associated with consumer devices.

23 Apple engineers are forced to engineer their
24 sensors within the context of a very small form factor, a
25 small device, that needs to coexist with a huge array of

1 other components within those devices, many of which have
2 nothing to do with the health sensors, but can interact with
3 those sensors through electromagnetic interference or
4 vibrations or other forms of effect.

5 It is a tremendous engineering challenge to have
6 to design health-sensing hardware in the context of these
7 multipurpose devices, which reside in a beautiful,
8 attractive design, industrial design, that Apple has placed
9 a special focus on.

10 These patents don't teach anything about how to
11 achieve the engineering challenges that Apple has faced, yet
12 Masimo is trying to assert claims that were drafted to
13 stretch and stretch, to cover these types of consumer
14 products, and, as Your Honor, we believe, will find, based
15 on the evidence, we believe the evidence will show,
16 Your Honor, the stretch is, A, not far enough to establish
17 actual infringement, and, B runs headlong into prior art.

18 The basic problem they face, Your Honor, is that
19 by stretching these claims they have drafted them to cover
20 the lowest common denominator technology that can be common
21 to both clinical and consumer products, but that type of
22 technology has been known long before these patents were
23 filed, indeed, in some cases, decades before these patents
24 were filed.

25 And also, as I said, they didn't stretch quite

1 far enough. There are distinctions between each of the
2 asserted claims and the Apple Watch. So we believe the
3 claims are both invalid and not infringed.

4 And, to boot, as I mentioned earlier, the
5 domestic industry contentions in this case, I think
6 Ms. Swaroop suggested at one point that there's a burden on
7 Masimo from having to put in evidence on undisputed issues.

8 Let me be clear. Domestic industry issues are
9 hotly contested. We think for four of the five
10 patents-in-suit, there's nothing remotely close to domestic
11 industry as of the time of the complaint nor even today, and
12 for the fifth product there are severe problems in the
13 economic reporting data. And also for that product there's
14 no competition whatsoever between the Apple Watch and the
15 rainbow« sensors. So there is, indeed, a dispute on those
16 issues as well.

17 In short, to justify this sort of supply chain
18 cut, they would need to establish a proper factual basis on
19 all of these different issues, and we think the evidence
20 will show, again and again, they cannot meet their burden.

21 So, with that, Your Honor, I'll turn to the
22 evidence, some more specific evidence, which I'll try to
23 preview and contextualize. I'll start with just a few words
24 about Apple.

25 Apple, of course, has been around for decades.

1 It was started in the 1970s in California by Steve Jobs and
2 Steve Wozniak working out of a garage initially. The
3 company has grown over the years, and today employs over
4 100,000 employees across the U.S. and overseas as well.

5 But the research and development is headquartered
6 in California, including at the headquarters building that
7 you see right here. And it is, by any definition, an
8 American business success story.

9 Over the years Apple has focused on industrial
10 design, and I say that not just as a history lesson, but
11 because this has particular salience and relevance to this
12 investigation, Your Honor. Over the years Apple has gone to
13 great lengths to create products that look attractive, in
14 some cases they believe beautiful, and are very easy to use.
15 But at the same time, at the same time, have immense
16 computing capabilities within them, hugely powerful devices,
17 but in these attractive, easy-to-use packages.

18 And achieving all those goals takes the talent of
19 thousands of engineers, including the six who Your Honor
20 will hear from. They helped design the Apple Watch or
21 different parts of the Apple Watch.

22 The original Apple Watch, the Series 0, was
23 released in 2015. Mr. Land, the head of the Health Sensing
24 Hardware Group, was at the company at the time, and he will
25 explain to you some of the work that he personally did in

1 connection with the Series 0 watch.

2 The Series 0 watch had a wide array of software
3 capabilities. It allowed for users to customize the apps
4 that they could use on the watch, as just one example.
5 Music can be downloaded to use the watch, the original
6 watch, as, effectively, a wrist-worn iPod.

7 It also also some health functionality, including
8 calorie tracking, standing and exercise apps, and it had a
9 heart rate sensor that Mr. Land himself worked on.

10 It also had LEDs and photodiodes for various
11 purposes, including heart rate sensing, and it had a curved
12 back crystal. Your Honor is going to hear a fair amount
13 about the back of the Apple Watch, including the accused
14 Series 6 and Series 7 models. But Your Honor will hear that
15 the shape, a dome shape of the watch, has been constant
16 since the Series 0.

17 And the reason for that domed, curved shape,
18 there are multiple reasons, one of which has to do with
19 charging. Your Honor may have seen that the Apple Watch can
20 be placed in a charging cradle. The dome fits snugly in the
21 cradle and is designed to align the watch with the charging
22 hardware components so that the charging can occur in an
23 efficient way. There was a very practical reason for that
24 dome shape. Again, that was part of the original Apple
25 Watch.

1 Over the years the Apple engineers have made
2 various improvements to the Apple Watch, the Series 1 and 2,
3 Series 3, Series 4, 5, and then we arrive at the Series 6
4 and 7, the accused products in this investigation,
5 achievements over the years by various Apple engineers to
6 move the ball forward.

7 Now I'm just going to note here, those
8 achievements owe absolutely nothing to Masimo trade secrets,
9 Masimo proprietary information. Any suggestion that the
10 Apple engineers took Masimo information to put in the
11 hardware or software of the Apple Watch is false.
12 Your Honor will hear that firsthand from six different Apple
13 engineers.

14 The Series 6, among the improved features and
15 functions, included a processor and altimeter, a new and
16 better display, a new operating system. It also supported
17 some features used in the earlier models.

18 It included a blood oxygen sensor. This was the
19 first Apple Watch to include a blood oxygen sensor.
20 Your Honor will hear precisely how that sensor was
21 developed. It took years of hard work, including by the
22 folks who have come here to testify before Your Honor.

23 It also, the Series 6, supported features
24 available in some earlier models, including health
25 functionality.

1 Series 7, another advance in the display, some
2 improved durability and environmental sealing. As
3 Your Honor will hear, the watch is a waterproof device
4 designed for swimming and other activities that could expose
5 the device to water or moisture, other contaminants.

6 It is designed explicitly not to have holes in
7 it, which would allow water or other contaminants to enter
8 into the structure. It is a sealed structure. It always
9 has been. It has no openings.

10 The Series 7 also has the WatchOS 8 operating
11 system, a new advance in the operating system, and it
12 retained the blood oxygen sensor and other features like the
13 heart rate monitor from the Series 6.

14 Now, if we look at the full range of Apple
15 models, they represent years upon years of hard work by
16 many, many, many engineers within Apple. And there are, of
17 course, far more features in these devices than just the
18 health-sensing hardware. There's a whole panoply of
19 features and functions available to Apple Watch users. Even
20 within the context of the health-sensing hardware there's
21 far more than just the blood oxygen sensor.

22 So what is occurring in this case is Masimo is
23 targeting a sliver of the function in the overall watch and
24 arguing that sliver justifies an import ban on the entire
25 Series 6 and the entire Series 7. And we believe the

1 evidence will show no such thing.

2 Now if we shift to Masimo, the evidence will show
3 that Masimo has focused over the years to clinical products
4 for doctors' offices and hospitals and home settings under
5 the care of a clinician. Now let me be clear. They have
6 released certain consumer products over the years, not every
7 one of their products was purely for a clinical setting, but
8 the majority of their business has been in the clinical
9 setting, a substantial majority.

10 And even their consumer products, we believe you
11 will see, are far different from the consumer wearables like
12 the Apple Watch.

13 Here's some examples of Masimo products. Credit
14 where credit is due. We think Masimo has made some valuable
15 contributions to the clinical setting, and we respect the
16 work that they have done in connection with public health in
17 that setting.

18 But it's a different setting than the consumer
19 wearables marketplace. The engineering challenges are
20 different. The technological solutions to those challenges
21 are different. And there's a fundamental disconnect between
22 patent applications drafted in the context of products like
23 the ones you see here and the Apple Watch. And they can't
24 bridge that gap, we believe, without running headlong into
25 the prior art, and, even if they do, they haven't stretched

1 far enough in terms of how they have drafted the claims to
2 capture the Apple Watch. There is no infringement.

3 So let me turn to the patents, the '127, '745,
4 and the collection of related patents, the '501, '502, and
5 '648, which we call the Poeze patents, after one of the
6 named inventors, and we believe that for all of these
7 patents you will see the same pattern, this pattern of
8 trying to stretch disclosures, drafting claims directed to
9 lowest common denominator technology that was known years
10 before these patents were filed or the parent applications.

11 And even despite that, even despite the stretch,
12 failing to stretch far enough to actually establish
13 infringement of the Apple products. In all five of these
14 patents, we also believe that there's not going to be a
15 showing of a sufficient domestic industry to carry Masimo's
16 burden on that important issue.

17 So let me, for an example, the timeline of the
18 prosecution of these patents, the timeline for the '745
19 patent.

20 We believe that the timeline tells the tale for
21 this patent and for others as well. If you look at the
22 chronology, Your Honor, the Apple Series 0 watch, the very
23 first Apple Watch model, was released on April 24th, 2015.
24 The provisional application that Masimo filed for the '745
25 patent was not filed until July 2nd of 2015. And then the

1 application that actually issued as the asserted '745 patent
2 was filed in March of 2020, years after various Apple Watch
3 models had been introduced.

4 If we look at the timeline for the Poeze patents,
5 the '501, the '502, and the '648, again, the pattern is
6 perhaps even more pronounced. Here we have the original
7 provisional application filed in 2008. I'll try to
8 highlight that, if I can, with a laser pointer. Then
9 there's a variety of applications filed in the intervening
10 period before the three applications that issued as the
11 '501, '502, and '648.

12 But if Your Honor looks at the dates, the dates
13 for each of those applications in that interim period
14 occurred shortly after an Apple Watch release. Apple Watch
15 Series 0, April 2015, next application, December of that
16 same year. Apple Watch Series 4, released September 2018,
17 four more applications filed by Masimo starting in December
18 of 2018. Apple Watch Series 5 released, September of 2019,
19 two more applications filed starting in December of 2019.
20 And then three more applications filed in 2020 shortly after
21 the Series 6 watch was released in September of 2020.

22 Masimo may claim this is a coincidence. We
23 believe the evidence will show it was not a coincidence at
24 all.

25 The '127 patent, claim 9, is a good first example

1 of how Masimo has had to draft claims directed to lowest
2 common denominator technology in an effort to bridge the gap
3 between clinical products and consumer wearables like the
4 Apple Watch.

5 If you look at the claim limitations, they claim
6 basic components, like a plurality of light-emitting
7 sources, temperature sensor, a detector capable of detecting
8 light. These are all old as the hills.

9 And what the claimed innovation here is to use
10 something they call a thermal mass along with a temperature
11 sensor thermally coupled to the thermal mass and capable of
12 determining a bulk temperature for the thermal mass.

13 So the purported innovation here is to regulate
14 the bulk temperature using this thermal mass as a regulation
15 component.

16 Now from the joint technology tutorial presented
17 to Your Honor, and this is the joint tutorial, it is known,
18 has been known for long, a long, long time, that by
19 adjusting the temperature -- the temperature of an LED
20 device can effect the wavelength of the light, the
21 temperature and the wavelength of the light have a
22 relationship, and there can be variation of that wavelength
23 based on temperature. That was known.

24 Webster is just one example of a well-known
25 treatise from 1997 that teaches that same idea, variation of

1 wavelength based on temperature. So that's clearly not a
2 patentable concept.

3 Now the claims use this term, a thermal mass, a
4 thermal mass, and that particular phrase, a thermal mass, is
5 an unusual combination of words that they are accusing --
6 may shed some light on what they mean by it -- what they are
7 accusing are copper substrate portions within the Apple
8 Watch on which certain components reside.

9 But Your Honor will see evidence that the
10 substrate technology used in sensor devices, again, has been
11 known for decades. One example is Mendelson from 1991,
12 which was a blood oxygen sensor which had a substrate, and
13 if a substrate qualifies as a thermal mass, Mendelson had
14 it.

15 Scarlett is another example. This one shows
16 copper lines through the substrate, copper pathways, like
17 the copper pathways that are accused in the Apple Watch.
18 Again, these types of basic structures have been known for
19 years and years, decades and decades.

20 So even the purported innovation of that patent,
21 we believe the evidence will show that, if a thermal mass to
22 regulate bulk temperature can be satisfied by mere PCB or
23 other forms of substrates, there's no possible way that they
24 can survive scrutiny in light of the prior art, the claims
25 are invalid.

1 If we turn to the '745, again, we see a similar
2 pattern, claims that recite lowest common denominator
3 technology in an effort to bridge the gap from the clinical
4 setting to the consumer wearables setting.

5 This is the patent which Ms. Swaroop referred to,
6 which changes the shape of light, according to the
7 disclosure. It involves components like a plurality of
8 light-emitting diodes, a plurality of photodiodes, light
9 block processor. These are basic old components.

10 But the key purported innovation here is to take
11 light from a light-emitting diode, which is emitted in a,
12 quote, first shape, to put that light through a material
13 configured in a particular way, according to the claims, to
14 change the light from a first shape into a second shape.

15 So the purported innovation here literally is
16 running light through a component to change the shape of the
17 light. That's the purported innovation.

18 And that is no innovation at all. Just one
19 example is the Iwamiya patent filed by Casio Computer. This
20 was filed back in 2010, twelve years ago.

21 Here you can see, Your Honor, in red are
22 light-emitting units. The light in these units passes
23 through various structures, including this annular light
24 guide. That's that ring-shaped component in yellow below.
25 The light that comes out the other side is in a new shape, a

1 ring. That's exactly one of the shapes that is claimed as
2 inventive in the '745 patent.

3 So Iwamiya teaches this basic idea of passing
4 light through a structure such that it arrives out the other
5 side in a different shape.

6 Again, there's many examples of this. This is
7 simply one.

8 Another example is the Fresnel lens in the
9 original Series 0. In the Fresnel lens, there was a grooved
10 Fresnel lens. It was a grooved lens that was used in the
11 Series 0. And for one of the light-emitting diodes or LEDs,
12 the one in red that you can see in the top left-hand corner,
13 the light would pass through some of the grooved sections of
14 the lens, and it would come out the other side in a crescent
15 shape.

16 So, again, if that's the purported innovation
17 here, changing light from one shape to another by running it
18 through a structure, the Fresnel lens in the Series 0 is
19 certainly an example of that.

20 Ms. Swaroop suggested there was some dispute as
21 to the date. There will be no dispute. The Series 0 watch
22 was released to great public fanfare in 2015. The Apple
23 witnesses will testify to exactly that. This is not a fact
24 that can be reasonably contested. It was a public,
25 commercial release to the world, and we'll certainly put in

1 evidence on that point, but the Fresnel lens in that device
2 did change the shape of certain light emitted by light
3 diodes.

4 Again, we would never claim that's a patentable
5 invention, but, if that's the contention, the Fresnel lens
6 invalidates.

7 Now if we turn to the Poeze patents, '501, '502,
8 and '648, once again, we see the same pattern. These are
9 the so-called Multi-Detector Patents according to Masimo.
10 And these claims are long, but if you look at any portion of
11 them, this is just old technology.

12 LEDs, photodiodes, a convex surface are just some
13 examples, storage device, a strap. The length of the claims
14 should not be taken as any indication of their innovation.
15 Again, every single part of these claims was old as the
16 hills.

17 Here's what they submitted as patent, prior art
18 to the Patent Office, page after page of prior art
19 references, which speaks to how crowded this field was,
20 speaks to some of the rudimentary features they were trying
21 to claim as patentable.

22 Even though they submitted all this prior art,
23 they didn't submit enough. We will show Your Honor many
24 prior art references that were not before the Patent Office.
25 Those include the ones you see here. These are all

1 physiological sensors, including some blood oxygen sensors,
2 and they all include multiple detectors.

3 The purple components that we colorized here,
4 Your Honor, are all photodiodes. As you can see, every one
5 of these devices has multiple detectors for detecting light,
6 multiple photodiodes, and it goes on. Here's another slide
7 of additional photodetectors from over the years.

8 If you look at the dates, Your Honor, you can see
9 some are from the 1970s, 1978, into the '90s, into the
10 2000s, and, again, it continues.

11 So multi-detectors, there's nothing patentable
12 about multiple detectors. Reference after reference after
13 reference speaks to that.

14 Ms. Swaroop said we have disclosed dozens of
15 patents and other publications as state of the art evidence.
16 She is exactly right. We certainly have. And there's a
17 good reason for that. These patents are directed to
18 technology that was taught many times over in decades that
19 preceded these patent applications.

20 To the extent that the contention here is that
21 the convex surface requirement is somehow a patentable
22 advance, it's not. Again, you can see it over and over
23 again, including the Smart reference from 1971, the Cramer
24 reference from 1978, on and on and on.

25 And if we -- even if we focus on particular

1 combinations of these old components, Your Honor will see
2 that we have evidence of that too. One example is the
3 Lumidigm patent.

4 You will hear live testimony from Dr. Robert
5 Rowe, a former engineer at Lumidigm. He is one of the named
6 inventors on the Lumidigm prior art reference that you see
7 here, which is directed to an electro-optical sensor.

8 Now, Ms. Swaroop mentioned that there's a lot of
9 different use cases disclosed in the Lumidigm patent, and
10 she is correct about that. One of the use cases is blood
11 oxygen sensing, and you can see the highlighted text here,
12 blood oxygen sensing using light detectors with multiple
13 diodes.

14 You can see here the multiple photodiodes and the
15 multiple emitters on the right, the emitters in red, the
16 diodes in purple, and there's an explicit disclosure of
17 using these types of configurations and structures within a
18 watch. Fig. 8B shows using the multiple detector sensor
19 taught by Lumidigm in a watch.

20 To the extent there's some critique by Masimo of
21 the sufficiency of the disclosure of Lumidigm's teaching
22 with respect to a watch, well, if they argue that, they are
23 going to have a big problem with the Poeze patents, which
24 have a threadbare disclosure of actually using their sense
25 technology within a watch. The Lumidigm disclosure is at

1 least as much if not more than what's in Poeze.

2 But what is clearly in Lumidigm are multiple
3 detectors, multiple photodiodes, and a convex protrusion.
4 It teaches a compound curvature on the optical surface.

5 So even if one looks at the combination of all
6 these old elements recited in these long claims, Lumidigm
7 taught it.

8 Moreover, Professor Steven Warren from Kansas
9 State University, who is one of our two independent
10 technical experts in this case, he will explain to
11 Your Honor, not only all the prior art references that we've
12 looked at from third-party publications and patents and so
13 on, but also that one of his undergraduate students created
14 a blood oxygen sensor using multiple detectors.

15 So, again, the shorthand that Ms. Swaroop used to
16 refer to the Poeze patents was the multiple detector
17 patents. Here is an undergraduate student project that had
18 multiple detectors used for blood oxygen sensing. That too
19 is prior art to the Poeze patents.

20 Now if we look at the Asserted Patents, not only
21 is there prior art problems, there's also section 112
22 problems. For several of the claims that are asserted in
23 this case, the stretch that's been executed by Masimo during
24 the drafting of those claims has gone so far as to
25 disconnect the claims from the written descriptions within

1 the patents.

2 There is an insufficient written description to
3 demonstrate possession of the claimed invention and
4 enablement of those inventions and section 112 problems.
5 We'll get into the details of those over the course of the
6 case.

7 Now as I said, for each of these patents we see
8 this pattern of stretching and covering -- drafting claims
9 directed at lowest common denominator technology in an
10 effort to bridge the gap from clinical to consumer
11 wearables, but the stretch was not far enough.

12 There is no infringement with respect to the
13 Apple Watch because distinctions remain as to each of the
14 patents in the case.

15 For the '127 patent, there's a requirement of a
16 thermal mass -- I talked about that earlier -- a temperature
17 sensor thermally coupled to the thermal mass and capable of
18 determining a bulk temperature for the thermal mass.

19 Now at this point, Your Honor, I'm going to go on
20 the confidential Apple record before I discuss the next
21 slide, so I would ask that Masimo and the public be excused.

22 (Whereupon, the hearing proceeded in confidential
23 session.)

24

25

1 O P E N S E S S I O N

2

3 JUDGE BHATTACHARYYA: We're moving back to the
4 public record.

5 MR. MUELLER: May I proceed?

6 JUDGE BHATTACHARYYA: Yes, you may.

7 MR. MUELLER: Thank you, Your Honor.

8 The domestic industry requirement, of course,
9 Your Honor is well familiar that it requires there be a
10 domestic industry that exists or is in the process of being
11 established. And we believe these requirements are not met
12 for the asserted domestic industry products in this
13 investigation.

14 Now, I won't belabor this, because Your Honor has
15 received extensive briefing on the issue, but we do believe
16 the law is clear that the relevant time for assessing the
17 satisfactoriness of a domestic industry is at the time of
18 the filing date of the complaint.

19 Among the cases that set out that point is a
20 Certain Thermal Plastic Encapsulated Electric Motors case,
21 which says, ordinarily, the relevant date at which to
22 determine if the domestic industry requirement is satisfied
23 is the filing date of the complaint.

24 And as this case proceeds to explain, the
25 Commission has explained that it will consider

1 post-complaint evidence regarding domestic industry only in
2 very specific circumstances, i.e., when a significant and
3 unusual development has occurred after the complaint has
4 been filed.

5 No such event has occurred here. In fact,
6 there's not even an allegation of a significant and unusual
7 development occurring after the complaint. So we believe
8 the relevant time for assessing the domestic industry is the
9 date of the complaint.

10 But at whatever point Your Honor assesses it,
11 even today, there is no proper domestic industry for these
12 patents.

13 To take the Masimo Watch, which is the asserted
14 domestic industry product for four of the five patents, the
15 evidence will show it's a bit of a moving target for us to
16 even figure out when the so-called project started. Witness
17 testimony has varied. And the details of the research and
18 development period really remain opaque to us in important
19 respects. What exactly happened in the years before the
20 amended complaint was filed in July of 2021 is a bit of a
21 mystery.

22 I'm sure we're going to hear testimony on this
23 subject from the Masimo witnesses, but, as Your Honor is
24 aware, we have been fighting furiously to get information on
25 this subject for months and months and months and months,

1 and it's been a continual moving target in terms of what the
2 physical product or products are that evidence this
3 development and the details about how those products work or
4 don't work, who developed them, or didn't develop them.
5 It's a question mark.

6 Even if we look at the period for after the
7 complaint was filed in July of 2021, it's clear that R&D
8 continued. There was no finished Masimo Watch when that
9 complaint was filed -- not even close.

10 Even as of today you cannot buy this Masimo W1
11 watch in any store in the U.S. It is not on the open
12 marketplace. It's not a commercial product in competition
13 with the Apple Watch even today, even today, and certainly
14 not as of the time of the complaint.

15 Your Honor, at this point I am going to go into
16 Masimo confidential information, so I would ask to go on the
17 Masimo confidential record.

18 (Whereupon, the hearing proceeded in confidential
19 session.)

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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: Why don't we take our
4 morning break at this time. We're on break for 15 minutes.

5 (Whereupon, the proceedings recessed at 11:06
6 a.m.)

7 (In session at 11:22 a.m.)

8 JUDGE BHATTACHARYYA: We're back on the record.
9 We're on the public record.

10 Is Apple's counsel ready to proceed as well? I
11 believe you're muted still.

12 MS. SWAROOP: Still can't hear you.

13 MR. MUELLER: Thank you. We're ready to proceed,
14 Your Honor.

15 JUDGE BHATTACHARYYA: Ms. Swaroop, are you ready
16 to call your first witness?

17 MS. SWAROOP: I am, Your Honor. Before we do
18 that, we do have evidence that is being received without a
19 sponsoring witness. So we would like to move that in now
20 before we begin our examination of our first witness. We
21 did provide a list to Apple's counsel yesterday based on
22 Your Honor's rulings. I do think we have agreement with
23 regard to the list.

24 JUDGE BHATTACHARYYA: The procedure we normally
25 follow is that you send it to the Bhattacharyya337 email

1 address so that I can have a copy to look at it, and then
2 I'll confirm on the record if there's no opposition and let
3 the evidence in.

4 Do you want to do that now or we can do it --
5 it's up to you.

6 MS. SWAROOP: Yes, Your Honor. We do have a list
7 electronically.

8 MR. MUELLER: Your Honor, I would just need to
9 confer with some folks to cross-check those numbers, so the
10 email procedure would be helpful to us.

11 MS. SWAROOP: Understood, Your Honor. We will
12 send the email and take care of this later. So I guess we
13 are ready to begin with our first witness. Mr. Joseph Re
14 will be conducting the examination.

15 For our first witness Complainants call Joe
16 Kiani.

17 JUDGE BHATTACHARYYA: I just wanted to make sure
18 the court reporter is still with us. Great. Thank you.

19 MR. RE: Good morning, Your Honor. Pleasure to
20 be here. If my voice sounds a little funny, I am a COVID
21 survivor. It's only my second day back in the office.

22 JUDGE BHATTACHARYYA: I'm glad to have you back.

23 MR. RE: Before I begin with Mr. Kiani, there
24 were some outstanding objections. I believe we are to deal
25 with those at the time I am going to introduce them rather

1 than argue about their admissibility in advance.

2 JUDGE BHATTACHARYYA: That's fine, if that's the
3 procedure -- that's fine.

4 MR. RE: Yes. There are four objected to
5 exhibits that I do want to introduce despite the objection,
6 and I'm ready to respond if argument is required.

7 JUDGE BHATTACHARYYA: Okay.

8 MR. RE: Thank you.

9 JUDGE BHATTACHARYYA: Welcome, Mr. Kiani. Do you
10 understand that you're under an obligation to tell the truth
11 here today?

12 THE WITNESS: Yes, Your Honor.

13 JOSEPH KIANI,

14 having been first duly sworn and/or affirmed
15 on his oath, was thereafter examined and testified as
16 follows:

17 DIRECT EXAMINATION

18 BY MR. RE:

19 Q. Good morning, Mr. Kiani. For the record, could
20 you please give your full name and spell your name?

21 A. Yes. My name is Massi Joseph E. Kiani,
22 M-A-S-S-I, Joseph, E, and K-I-A-N-I.

23 Q. What are your current positions?

24 A. I am chairman and CEO of Masimo and Cercacor.

25 Q. For how long have you been the CEO of Masimo?

1 A. Since inception. Since 1989 where I started
2 Masimo in my garage.

3 Q. Could you briefly tell us about your formal
4 education?

5 A. Yes. I have my bachelor's and master's from San
6 Diego State University in electrical engineering.

7 Q. And the master's, what was your master's degree
8 on at San Diego State?

9 A. Advanced signal processing, adaptive filters, AI.

10 Q. When you said you started Masimo in 1989, what
11 was your main purpose in starting Masimo?

12 A. I wanted to solve the motion artifact problem
13 with pulse oximeter.

14 Q. What exactly, briefly, is pulse oximetry?

15 A. Pulse oximetry is the noninvasive measurement of
16 arterial oxygen saturation and pulse rate using two
17 wavelengths of light passing through a tissue and looking at
18 the pulsatile information and normalizing that from the bulk
19 or the DC information.

20 Q. Now you mentioned this motion problem. Explain
21 to me what exactly is the motion problem.

22 A. Well, the assumption pulse oximetry makes, the
23 invention of pulse oximetry back in '72 with Dr. Aoyagi, is
24 that whatever pulsates is what we're interested in.

25 During motion the venous blood starts pulsating

1 at your frequency of motion. Venous blood is typically less
2 than 10 millimeter mercury or your arterial is probably 100,
3 120. So it's a Jell-O pool of blood.

4 So when you start moving, the venous information
5 starts getting in the signal, and it confused a conventional
6 pulse oximeter to give a normalized average of arterial and
7 venous saturation.

8 Q. And in addition to motion, what other major
9 problem did you learn about in tackling this motion problem?

10 A. Low perfusion. Low perfusion is when there's low
11 blood flow to the extremity. When your hands are cold, you
12 have low perfusion. I usually have cold hands, and that's
13 why I noticed the problem early on as an engineer with the
14 motion and low perfusion.

15 It's not just a low signal-to-noise problem.
16 When you have low perfusion, because your hand typically is
17 your radiator trying to keep you cool, when you have cold
18 hands, you're not getting enough really -- you're not
19 getting a lot of arterial blood supply.

20 So the venous saturation becomes really low, like
21 50 percent, versus when you're hot, it could be 97.

22 So when you move, when you have low perfusion, it
23 really shows the problem of motion with pulse oximetry.

24 Q. Mr. Kiani, you can stare at the camera. It looks
25 like you're probably looking at a screen of me.

1 A. Yeah. I'm looking at you. Sorry.

2 Q. Look at the camera. That's much better.

3 And who else was part -- why was this motion
4 problem significant in the hospitals?

5 A. Well, when the patients were first monitored for
6 pulse oximetry it was in the operating room where patients
7 are sedated and not moving, but when patients started going
8 outside the OR and being monitored in the ICU, intensive
9 care unit, or neonatal unit, or recovery room, they don't
10 stay still.

11 So when they began moving, they realized 70 to 90
12 percent of the alarms were false alarms due to motion
13 artifact and low perfusion.

14 Q. And what other were some of the effects of these
15 caused by motion problems in patients?

16 A. Well, crying wolf made clinicians ignore the
17 alarm. They were finding a lot of patients dead in bed,
18 literally, because they ignored the alarm.

19 And the neonatal intensive care unit where you're
20 not just worried about too little oxygen, but you're worried
21 about too much oxygen, because the baby's eyes aren't
22 developed yet, a lot of babies were getting severe eye
23 damage. Two thousand a year were becoming blind. In fact,
24 Stevie Wonder is blind from ROP, retinopathy of prematurity,
25 in the neonatal ICU.

1 Q. Can you say that word, ROP, more slowly for the
2 court reporter? What does it stand for?

3 A. Sure. Retinopathy of prematurity, so eye damage
4 due to prematurity, but it's really due to gyrations in the
5 oxygen in the neonatal ICU because they didn't have a
6 trustworthy pulse oximeter.

7 Q. And who joined you in this endeavor to begin
8 tackling the motion and low perfusion problems?

9 A. Mohamed Diab. Six months after I started Masimo,
10 Mohamed joined me, and he -- I started Masimo with a \$40,000
11 loan on my condo, and I wanted Mohamed to join, but he said
12 until you raise money from third parties, I'm not sure I'm
13 going to give up my job to join you, because I had raised by
14 then \$80,000 from other people, and Mohamed joined me.

15 Q. What did Mr. Diab do when he joined Masimo?

16 A. He developed the circuit and wrote the software.
17 Eventually he became our chief technical officer.

18 Q. And what techniques did you begin to use to
19 tackle this motion problem with pulse oximetry?

20 A. Well, I had studied, my master's work, area of
21 adaptive filters, which had been used in antisubmarine
22 warfare and satellite communication, and adaptive filters
23 were incredibly a useful tool because they could adapt to
24 the noise.

25 So when they saw noise coming at a certain

1 frequency versus another frequency, it would adapt its
2 coefficients to cancel. Because the problem -- canceled the
3 noise frequency. The problem is motion is happening in the
4 same window that we're looking for a signal, which is from
5 30 beats per minute to 300 beats per minute.

6 So adaptive filters, which I thought would work,
7 ended up working along with things we call parallel engines
8 and improved sensor design and hardware design to actually
9 get rid of the motion artifact problem and the low perfusion
10 problem.

11 Q. I'd like to delve in quickly to some of your
12 early products. If you could -- there's a book in there --
13 you can look at the book if you need to see the original.

14 We'll put it on the screen to try to save some
15 time, but, in particular, I'd like to direct your attention
16 to Complainants' or CX Exhibit 1370. If you can just tell
17 me what that is.

18 A. That is our 25th year anniversary annual report
19 from our incorporation.

20 Q. And I'd like to take you to page 4 of that
21 report, which begins a multipage timeline.

22 Do you see that?

23 A. I do.

24 Q. I wonder if you could briefly describe some of
25 your early products that are represented by this timeline.

1 A. Yes. So after our founding in '89, we show here
2 in 1995, for the first time we showed Masimo pulse oximetry
3 at the Society of Technology and Anesthesia and introduced
4 an OEM board called the MS-1 that we wanted companies that
5 made patient monitors to incorporate to have Masimo SET
6 level pulse oximetry.

7 Q. And how were your products initially received
8 bought these boards?

9 A. Well, everyone was blown away at what we could
10 do. The industry had tried for years to deal with the
11 motion artifact problem and had concluded that it was
12 impossible to solve. It was just inherent limitation of
13 pulse oximetry.

14 So when we showed people we could actually
15 measure-through-motion and low perfusion, everyone was just
16 blown away, and it was highly regarded.

17 Q. And then after 1995 I see some entries for
18 some -- your own products.

19 Do you see those? In 1998, '96, do you see
20 those?

21 A. Yes.

22 Q. What did you begin to do with your boards after
23 you introduced the MS1?

24 A. Well, first of all, by 1996 is when the first
25 time the product shipped to consumers, when this case being

1 the clinical consumers, and through an OEM we called Contron
2 from England, but you see the LNOP sensor, which is our low
3 noise optical probe sensor that was introduced then, later
4 we created our own standalone device with the help of a
5 company called Ivy Biomedical where we could show standalone
6 pulse oximeter with our technology rather than a
7 multiparameter patient monitor. And then NEC created the
8 standalone as well.

9 Q. I'd like you to take a look at what is page 35 of
10 this annual report, particularly the right side.

11 If you could briefly explain, what is this chart
12 shown in your annual report?

13 A. Well, by now numerous clinical studies had come
14 out showing the advantages of Masimo SET. This was the most
15 comprehensive done by Dr. Steven Barker. I think it was in
16 2002 that this came out.

17 And he compared Masimo SET to all of the
18 available commercial pulse oximeters at the time. And he
19 looked at their sensitivity versus their specificity, and
20 this is what is known as a ROC curve, a receiver operating
21 characteristic curve, which plots on the y-axis the
22 sensitivity, on the x-axis one minus the specificity. An
23 ideal product should go straight up. You can see we're
24 pretty close to that. That red is Masimo SET.

25 For example, at a 95 percent sensitivity, we have

1 about a 3 percent false alarm rate, where, if you just keep
2 going right, they get a lot worse, 30, 40, 50 percent false
3 alarm, and some of them are worse than the flip of a coin.
4 These are random number generators.

5 Q. For the record, I need you to define what's the
6 difference between the sensitivity of a device and the
7 specificity of a device.

8 A. Yes. Sensitivity is the ability to pick up true
9 alarm, a true event. Specificity is the ability to reject
10 false events. So you would like to have a product that's
11 100 percent sensitive and 100 percent specific.

12 Q. I'd like you to take a look at what has been
13 marked as Complainants' Exhibit 0777.

14 If you could just identify this document for the
15 record.

16 A. Yes. This is what we referred to as
17 bibliography. It summarizes some of the studies on SET,
18 Masimo SET pulse oximetry, and rainbow« pulse, which is this
19 multiwavelength blood constituent sensor that you put on
20 your site to measure 12 parameters.

21 Q. And tell me how many articles and studies have
22 confirmed the superiority of Masimo SET technology?

23 A. Over a hundred. Over a hundred. And what's
24 really unique here is in clinical world usually, whatever
25 you create, a third of the studies say they're better, a

1 third say they're worse, a third is neutral. In our case,
2 over a hundred said it was positive and a couple neutral.

3 Q. Now you mentioned the LNOP, the low noise optical
4 probe.

5 If we can go back to that, 1370, page 4, and blow
6 up that 1996 entry.

7 A. Yes.

8 Q. Is this -- tell me more about this sensor. Is
9 this a single patient use? What kind of sensor are we
10 talking about here.

11 A. If you zoom out of the picture --

12 Q. 1996.

13 A. Go back to 1996 LNOP, if you go look at that,
14 just go -- so what you see is it's an adhesive, single
15 patient use sensor, and that white bump you see there,
16 that's actually the invention there. That's a cavity that
17 the digit can sit on to minimize the impact of motion.

18 Q. How did you market this as assisting with your
19 Masimo SET performance?

20 A. Well, it was part of the system. We were trying
21 to solve this problem of motion artifact, as I mentioned,
22 and what we figured out that, if you put the soft tissue
23 into this cavity, you minimize the optical perturbation of
24 the site.

25 Q. And so it's the subject of a patent, I

1 understand?

2 A. Yes. In fact, the name of the sensor is the
3 title of the patent, low noise optical probe.

4 Q. For the record, it's Complainants' Exhibit 1586.
5 If we can call that up.

6 Is this the patent on that sensor?

7 A. Yes, it is.

8 Q. And if we can go to Fig. 4, I'd like you to
9 describe for the record what's shown in Fig. 4 of this '818
10 patent.

11 A. Yeah. Basically, the dashed lines is the body of
12 the sensor, where you see the flesh, the 128 is sitting on,
13 130 is the LED that's shining through the tissue going to
14 the photodetector 126. And you see the photodetector is
15 recessed, and it's actually in a cavity where the tissue can
16 sit on underneath where you have these protective dashed
17 line barriers to make sure you don't get light piping but
18 you get the light from the LED to the photodetector.

19 Q. And 128, is that the finger or tissue?

20 A. Yes.

21 Q. Okay. And the detector is 126 in the bottom of
22 the well, is that what you're saying?

23 A. Yes.

24 Q. Okay. And what did other sensors at that time
25 do, which made this a patentable invention, in your mind?

1 A. Well, everybody else in the industry would bring
2 the detector right up to the 128, the patient finger in this
3 case, and have -- try to be as planar and flat as they could
4 with the sensors, the detector and the LED.

5 Q. How did the medical device industry react to
6 Masimo's entry into the pulse oximetry market?

7 MR. MUELLER: I'll object for lack of foundation
8 as to what other folks may have reacted to. Mr. Kiani can
9 talk about his own reactions, but I would object on lack of
10 foundation grounds and hearsay grounds to the perspective of
11 third parties.

12 JUDGE BHATTACHARYYA: Mr. Re, did you want to
13 respond?

14 MR. RE: I'll rephrase.

15 Q. What did you personally experience when you
16 introduced your products in the medical device industry?

17 A. Well, after our patent was published, everybody
18 became all of a sudden quite smart. What they couldn't do
19 for over a decade before in solving the motion problem,
20 everyone all of a sudden seemed to have a solution.

21 So several companies violated our patents. We
22 ended up suing Nellcor, which is the market leader, about 90
23 percent market share at the time, and once we won that
24 litigation, everybody else except for two, a Chinese company
25 called Mindray and a European company called Philips, we had

1 to sue them. They wouldn't stop. And ultimately Mindray
2 settled right before trial, and Phillips went to trial, and
3 we won that litigation, both with the jury and the judge.

4 Q. I just want to go back to the Nellcor case.

5 What was the outcome of the Nellcor patent
6 infringement case?

7 A. Yeah, the Nellcor case, the court ordered that
8 040505 CI, which was the technology generations for Nellcor,
9 had infringed our IP, and the Federal Circuit court ordered
10 their injunction of those products.

11 MR. MUELLER: I'm sorry. I'm just going to move
12 to strike testimony about court decisions from other cases
13 involving patents not asserted in this case. I object and
14 move to strike Mr. Kiani's testimony characterizing
15 decisions from other bodies on a patent not in this suit.

16 JUDGE BHATTACHARYYA: Mr. Re?

17 MR. RE: The court can take judicial notice.
18 This is all public information in court filings, at the
19 Federal Circuit, in the Central District of California,
20 everything Mr. Kiani mentioned is all of public record.

21 JUDGE BHATTACHARYYA: The objection is overruled
22 as to weight, not admissibility.

23 Q. Does Masimo or you have an estimation of how many
24 patients a year are monitored with Masimo technology?

25 A. Yeah, over 200 million patients are monitored

1 with Masimo pulse oximetry now.

2 Q. And as CEO of Masimo, can you tell me how your
3 products made a difference in health care today?

4 A. Yes. Dramatic. We have helped reduce blindness
5 in the neonatal ICUs. These are all documented by clinical
6 studies, the outcome studies. We have helped save lives on
7 postsurgical patients that were on opioids.

8 And recently, even with COVID, when patients
9 couldn't be admitted to the hospital because there were too
10 many patients in the hospital with COVID, they used our
11 technology to send the COVID patients home, and a study had
12 just come out showing 70 percent reduction in mortality.

13 No other pulse oximeter has ever shown outcome
14 improvement except Masimo's.

15 Q. And has Masimo received awards for its technical
16 achievements?

17 A. Yes. Numerous awards. Over 50 awards.

18 Q. In fact, if you can just, for the record, tell me
19 what is Exhibit 1378, if we can call that up.

20 A. Yeah, this is some of the awards we've received
21 for our inventions, the latest one being FDA granting us,
22 basically, as one of eight companies that could help the
23 epidemic, the opioid epidemic.

24 Q. And since you solved this motion and low
25 perfusion problems, has Masimo continued to invest in

1 research and development in other areas?

2 A. Yes. Absolutely. Masimo's founding was all
3 about innovation. I was 24 when I started Masimo. So we
4 had to prove ourselves. So we have continued to, not only
5 advance pulse oximetry, even though we made it 30 times
6 better than what was out there before, but we had then taken
7 the two-LED pulse oximeter to multi-LED we call rainbow« to
8 measure 12 parameters noninvasively for the first time,
9 including noninvasive hemoglobin, noninvasive carbon
10 monoxide, methemoglobin, that have all been shown to save
11 lives dramatically in hospitals.

12 Q. I wonder if you can just briefly describe, who is
13 Cercacor, your other company?

14 A. Yes. In 1998, at the behest of shareholders and
15 our board, we spun off a company called Masimo Laboratories
16 at the time that we named Cercacor, which means closer to
17 the heart. And Cercacor or Masimo Labs was to go work on
18 nonvital signs measurements, like rainbow«, like measuring
19 hemoglobin and hopefully noninvasive blood glucose, and
20 that's what Cercacor is.

21 Q. And what's the -- is there a legal or technical
22 relationship between Masimo and Cercacor?

23 A. Yes. At the time of the spinoff and later
24 updated, we have a cross-licensing agreement between the two
25 companies. So, basically, the two R&D organizations, Masimo

1 and Cercacor, can collaborate, because whatever they invent
2 it's shared amongst each other for the various projects.

3 Q. And for the record could you identify
4 Complainants' Exhibit 1612?

5 A. Yes, that is the latest cross-license agreement
6 between Masimo Laboratories or Cercacor and Masimo
7 Corporation.

8 Q. So tell me, today, or since the relevant periods
9 in this case, what are the projects that Cercacor works on
10 relating to this case?

11 A. Well, Cercacor is who developed rainbow«.
12 rainbow« platform was supposed to be the platform that
13 helped us to get to noninvasive glucose, but along the way
14 we checked for measurements that were maybe slightly easier
15 but a lot harder than pulse oximetry, like carbon monoxide,
16 like hemoglobin. And we delivered. Those things worked and
17 they have been in the market for over 15 years some of them.

18 Q. Well, let's call up that exhibit, the timeline,
19 Complainants' Exhibit 1370, and let's take a look at pages 6
20 and 7 of the timeline, because it does go many pages.

21 Can you show us from looking at the timeline in
22 Exhibit 1370 what are some of the parameters and products
23 introduced through the rainbow« research platform?

24 A. Yes. Beginning 2005, with SpCO, that's the
25 noninvasive way of measuring carbon monoxide. Nothing else

1 is like it out there still. And it helps firefighters and
2 people that may have been in a situation where they could
3 have inhaled smoke and carbon monoxide to detect when their
4 CO has gotten dangerous.

5 Q. Are you aware of any other companies that offer
6 products in competition with these parameters shown in this
7 timeline dealing with SpCO and methemoglobin and hemoglobin?
8 Are you aware of any other competing commercial products?

9 A. No. No. Over the years we've seen announcements
10 from a few companies, but nothing in the market. We are
11 still the only company with these parameters. And, like I
12 said, noninvasive hemoglobin has been proven to now reduce
13 mortality by 30 percent in hospitals.

14 Q. Why is it called rainbow«?

15 A. Because we went from a two wavelengths of light
16 to more than seven, like the colors of the rainbow, so we
17 call it rainbow«.

18 Q. And did you patent some of the research that came
19 out of the rainbow« research and development?

20 A. Yes. Absolutely.

21 Q. I just need you to identify for the record joint
22 Exhibit 1, if we can call that up.

23 Can you identify that for the record?

24 A. Yeah, that is actually the '501 patent that's in
25 this case that describes some of the inventions that we did

1 with rainbow«.

2 Q. And you're a named inventor on here?

3 A. Yes, I am.

4 Q. Can you identify for the record Joint Exhibit 2?

5 A. Yes.

6 MR. MUELLER: I'm sorry. I apologize for
7 interrupting here. I do want to make an objection based on
8 that last answer.

9 The alleged domestic industry products in this
10 case for these patents are not the rainbow« sensors. So I'm
11 going to object to testimony in which Mr. Kiani is trying to
12 link these patents and suggest that the rainbow« sensors
13 practice them.

14 The alleged products for these patents are the
15 Masimo Watch, the alleged product I should say, for domestic
16 industry. There's no contention in this case linking the
17 Poeze patents to the rainbow« sensors, and it's far too late
18 to make that now. So I object.

19 JUDGE BHATTACHARYYA: Mr. Re?

20 MR. RE: I'm doing no such thing. I'm just
21 laying out basic facts. I haven't gone anywhere near the
22 subtleties that Mr. Mueller is alluding to. I'm just
23 setting forth facts. I'm not making any argument.

24 JUDGE BHATTACHARYYA: Is Masimo making a
25 contention that the '501 patent covers the rainbow« sensor

1 products?

2 MR. RE: No. It's the research of the rainbow«
3 that led to where we're going later in time. Correct. This
4 is way earlier. I'm just introducing -- these are the
5 patents that are in the investigation. Mr. Kiani is an
6 inventor. I was just trying to make them of record. I
7 wasn't trying to do anything further yet.

8 MR. MUELLER: Your Honor, so long as there's no
9 contention by Masimo that the Poeze patents, the '501, '502,
10 '648, practice the rainbow« sensor products or that those
11 products are the domestic industry, then we can keep going.

12 JUDGE BHATTACHARYYA: Mr. Re, as I understood it,
13 you would agree with that --

14 MR. RE: Yes, I do.

15 JUDGE BHATTACHARYYA: -- statement? All right.
16 Then we can proceed.

17 Q. So the third patent is the -- can we identify for
18 the record Joint Exhibit 3, which is the '648 patent, and
19 call that up.

20 This is the third, as Mr. Mueller calls it, the
21 Poeze patents?

22 A. Yes.

23 Q. And you're an inventor on all three of these,
24 right?

25 A. Yes. Yes, I am.

1 Q. And who are these other gentlemen that are
2 co-inventors with you?

3 A. Well, these were, some of them, my former
4 colleagues, but my colleagues from Cercacor. You'll see,
5 for example, Marcelo Lamago, who went to Apple in Cupertino;
6 Sean Merritt, Cristiano Dalvi, who have now gone to Rockley,
7 who is Apple-funded. But, yeah, these are my colleagues at
8 the time at Cercacor.

9 Q. Could you just briefly explain how the ideas, the
10 research that's embodied and disclosed in these patents,
11 tell me, what was it you were doing that led to the
12 disclosures of these three patents?

13 A. Yeah. We were trying to measure noninvasively
14 hemoglobin and glucose, which are much more difficult
15 measurements than oxygen. Just getting to the signal is
16 really challenging. And we had come up with this idea of
17 the active pulse.

18 Instead of your natural pulse, that can be very
19 small from point 1 percent of the signal to maybe 4 or 5
20 percent, we wanted to create an active pulse, so we created
21 our own pulsation to create maybe 5 to 10 percent signal, AC
22 signal.

23 Well, during that experimentation, one time the
24 active pulse detector hammer had been left in, and when it
25 pushed up against the digit we noticed the signal got

1 stronger, which was a surprise to us.

2 And that led us to this idea that, hey, maybe we
3 should use actually a protrusion instead of the opposite,
4 which we always had done, which was the cavity. And then,
5 of course, along with that came problems of protrusion.
6 There was now light piping issues, and so we had to account
7 for it. But, yes, that's how this idea came about.

8 Q. Why were you surprised by the strengthening of
9 the signal when applying an active pulse?

10 A. Well, because usually if you press against your
11 digit you see it become white, the capillary blood bed
12 pushes out of the way. So we thought that's going to cause
13 the signal to go away, where actually at the right level it
14 actually increases it. You can go too far and do what I
15 just said or too little where it won't impact it. But at
16 the right height you actually get a bigger signal.

17 Q. I'd like you to look at Fig. 3C of the Poeze
18 patents, what we call multidetector patents, whatever.

19 Could you just tell me what you mean by the
20 protrusion by looking at Fig. 3C?

21 A. Yeah, the protrusion is the 305, and you can see
22 how it kind of comes up, it's got those four windows, 320,
23 322, and 21, and 3, where the four detectors are underneath
24 it where the light would go through from the top portion
25 where the LED would shine through the digit if your finger

1 were inside this alligator clip. And that's where we
2 protected the light from piping as well with those windows
3 and the recession. Again, that, 305, is the protrusion.

4 Q. And you said that when you use the protrusion it
5 caused problems with light piping, is that what I
6 understood?

7 A. Yeah. It made it worse. So we had to take extra
8 care to make sure that the light that you see by the
9 detector has gone through the tissue, and that's where we
10 basically created, again, this well, this time, you know,
11 with obviously a cover, as a reasonable product, and we made
12 sure that only the light that went through the tissue went
13 to the photodetector.

14 Q. I understand you prepared a demonstrative to
15 explain the ill effects of light piping; is that right?

16 A. Yes.

17 Q. If you can call up that demonstrative.

18 A. Yeah. So what you see here, on the left side,
19 this is a reflectance mode. You see the light emitter
20 diodes on the left, and the detector on the right. What you
21 want is the light to go down to the tissue and come back up
22 to the detector. But if you don't design this properly, you
23 get light that goes from the LED directly to the
24 photodetector, without going through the tissue.

25 And the same phenomenon exists also with the

1 transmissions. This is adhesive transmission sensor around
2 the finger, and you can see how the light, instead of going
3 right to the detector, some of it, if you're not careful,
4 will go around and get to the detector without going through
5 the tissue, which causes inaccuracies in the measurement.

6 Q. And if we go back to Fig. 3C, did I hear you or
7 understand you, did the hole or the well, did that go all
8 the way to the tissue in Fig. 3C?

9 A. It did. It did. And then down to the floor of
10 the detector, with optical barriers in that well, the walls,
11 to make sure only the light through the tissue gets to that
12 photodetector that's sitting at the bottom of that hole.

13 Q. And did you have a reason or understanding why
14 you know the industry did not understand the ill effects of
15 light piping?

16 A. Yes. Yes. During the '90s, early '90s, we were
17 developing the measured pulse oximeter, our main competitor,
18 Nellcor, came with the first time a new improved sensor, and
19 they had built it so it reduces the problem of emissions,
20 electromagnetic radiation that by putting a Faraday shield
21 around the detector, but because they weren't aware of the
22 light piping, that bump created the cavity, like a fiber, so
23 more light went from the LEDs to the detector and was
24 causing all kinds of errors out there, but they didn't
25 understand it. And so their improved product actually made

1 things worse.

2 Q. Okay. I'd like to change subjects now and talk
3 about your consumer products.

4 What was Masimo's first consumer-focused product?

5 A. The iSpO2.

6 Q. And what is the iSpO2?

7 A. I think as the name maybe suggests it's a product
8 that the pulse oximeter that connects to the smartphones,
9 like an iPhone or tablet or iPad, and we have it in two
10 versions, one with the finger sensor clip attached to the
11 cable, that goes right to the phones, and one with a
12 connector that allows you to plug in 50 different sensors we
13 make from neonate to adult, from ear to forehead and finger
14 to it.

15 Q. And did that technology that you incorporated
16 with the iPhone, did that have your medical-grade technology
17 in it?

18 A. Oh, yeah. I will not market any pulse oximeter
19 that doesn't have our Masimo SET performance or very close
20 to it, because I've seen the outcome difference. That's why
21 for years we would not enter into this consumer stuff,
22 because it would be toys, it wouldn't work. So, yeah, once
23 we got the power consumption down, remember, the MS1 board I
24 showed in '95, that consumed 4,500 milliwatts, so that could
25 not be made into a wearable or a consumer product. So it

1 was down to -- when we got the power down to about 20
2 milliwatts, we began to make these consumer products and
3 products that were wearable.

4 Q. I'd like you to look at Complainants' Exhibit
5 1511.

6 A. Yes.

7 Q. Would you identify for the record what is Exhibit
8 CX-1511?

9 A. This is a press release, an announcement, that we
10 also sent through what we call Livewire, which is an
11 electronic email database of our customers, where we
12 announced the availability of iSpO2, a debut of it, at the
13 Consumer Electronics Show in January of 2013.

14 Q. And when you say Consumer Electronics Show, you
15 showed this product at that show that year?

16 A. Yes.

17 Q. Prior to going to the Consumer Electronics Show,
18 what other shows did you go to before then?

19 A. Only the clinical ones, like the anesthesiologist
20 conference or critical care conference or nursing
21 conference. This was our first time going to kind of a
22 public consumer type of a marketplace.

23 Q. And did the iSpO2 device with the iPhone, did
24 that attract some media coverage at CES?

25 A. That was a big hit. There was numerous, like 15,

1 20 different articles written about it, and put on the news
2 about the availability of a medical-grade Masimo SET pulse
3 oximeter for the first time available on these kinds of
4 devices.

5 Q. And if I could show you Complainants' Exhibit
6 1512, could you explain for the record what is this exhibit
7 showing?

8 A. Yeah, I think this is just some of the -- kind of
9 like the cutouts of some of these articles that had come
10 out, 21 articles that had come out as of January 10th, 2013.

11 Q. And did Apple take notice of the notoriety you
12 were receiving with your consumer product for use with the
13 iPhone?

14 A. Yes. Within two to three months they contacted
15 us, and they said you guys are the platinum of noninvasive
16 monitoring, we want you to come down to Cupertino, we want
17 to learn more, we'll sign your NDA, we want to work with you
18 to integrate your technology into our products.

19 Q. Did you have such a meeting?

20 A. Yes, we did. I was personally there.

21 Q. And did Apple send you an agenda for the meeting?

22 A. Yes, they did.

23 Q. I'd like to show you an exhibit, which Apple has
24 objected to, so I'm alerting Mr. Mueller, it's Exhibit 1539.

25 Could you --

1 MR. MUELLER: Actually, before we put it up, we
2 might want to go on the Apple confidential record here to
3 discuss the details of this, the Apple/Masimo confidential
4 record for both parties.

5 JUDGE BHATTACHARYYA: Let's move on to the
6 confidential record for both Apple and Masimo.

7 (Whereupon, the hearing proceeded in confidential
8 session.)

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1 O P E N S E S S I O N

2 BY MR. RE:

3 Q. When did you become interested in a
4 wrist-wearable pulse oximeter?

5 A. Actually from the very beginning. When I started
6 Masimo, I hoped to one day build a wrist-worn pulse
7 oximeter, because I hoped to one day take the product out of
8 the hospital into home for sleep analysis, for detecting
9 babies that are about to die from sudden infant death
10 syndrome, to even taking it to the gym, take it to people
11 who are exercising. So that's been something since
12 practically 1990, 1991 that I was --

13 Q. And why weren't you able to do it back then and
14 just go on to the wrist?

15 A. As I mentioned, the power. Our technology, we do
16 so much signal processing with the adaptive filter, it used
17 to take a very sophisticated sharp chip from analog devices
18 that consumed about 3,000 milliwatts. Fortunately over time
19 these chips have gotten better and smaller and more power.

20 So, look, if I wanted to do conventional pulse
21 oximeter, I could have made a wrist-worn device 30 years
22 ago, but to make something that works accurately, reliably,
23 continuously, it needed to be Masimo SET or very close, and
24 that's what we were waiting for. And eventually we did get
25 the power down to do that.

1 Q. When did you start getting -- submitting --
2 spending serious resources towards pursuing a wrist pulse
3 oximeter?

4 A. Right around the time we had the low power pulse
5 oximeter, so around 2013, 2014, I remember 2014 we began
6 actually a project at Cercacor to develop a wrist-worn pulse
7 oximeter.

8 Q. And let's take a look at a document numbered
9 CX-1482, if we can call that up.

10 Would you identify this document?

11 A. Yes. This is a Cercacor presentation on what we
12 called the wrist-worn pulse oximeter or wearable rainbow«.

13 Q. If we can go to the picture, just the picture, on
14 page 114, could you identify that physical?

15 A. Yes, mind you, this is a prototype, so it was
16 okay to have all these cables dangling out, because this is
17 for data collection. But the sensor is where that black
18 part is on the wrist where it shines the LED, multiple LEDs,
19 multiple detectors, to pick up, not just SpO2, but hopefully
20 hemoglobin and CO and other measurements.

21 Q. What's the year of this presentation?

22 A. This presentation is 2016, I believe.

23 Q. And I'd like you to look at a physical exhibit
24 that's in your room. If you look over at the table to your
25 right, if you can call up and hold Complainants' physical

1 Exhibit 139 and let me know if you recognize that device.

2 Do you see it? Do you see the table next to you? To your
3 right.

4 A. Oh.

5 Q. To your right. There we go.

6 A. I see, yes. This.

7 Q. Yes. What is CPX-139?

8 A. This is the actual physical representation of
9 what's in that picture.

10 Q. And this is 2016, the presentation, if I
11 remember, you said?

12 A. That is correct.

13 Q. Okay. I'd like you to go to the next exhibit,
14 CX-1483.

15 Do you see this document?

16 A. Yes.

17 Q. I'd like you to go to the picture on page 2
18 ending in 120.

19 Could you tell me what that is?

20 A. Yeah. This is -- we were trying to see how the
21 measurement would work if it actually transmitted the signal
22 straight from one end of the wrist to the other side. This
23 is a transmission wearable wrist pulse oximeter, the giant
24 black thing there is the photodetector, and the little
25 circuitry someone is holding with their finger are the LEDs

1 on the other side.

2 Q. And what year is this watch prototype?

3 A. 2017.

4 Q. And can you look to your right, there's a
5 physical, CPX-140, can you call that up, show it on the
6 screen?

7 What is that physical?

8 A. Yeah, this is the actual, I guess, hardware
9 manifestation of that image that you just saw.

10 Q. For the record, that picture on CPX-140 was
11 ending in 120, the picture of this physical.

12 I'd now like you to look at CX-1520. If you
13 could identify this document for the record.

14 A. Yeah, this is, I think, a presentation at
15 Cercacor called the Hummingbird Project.

16 Q. And if you look at the picture on the page 15,
17 ending in 086, could you describe that for the record?

18 A. Yes, that's just another update to what the
19 wrist-worn pulse oximeter prototype looked like.

20 Q. And what was the point of this prototype?

21 A. It's to test the accuracy of it, not just in room
22 air, but under the saturation, where we brought in
23 volunteers, and by having them read a mixture of nitrogen
24 and oxygen, we dropped them from room air of 100 percent to
25 70 percent.

1 Q. I'd like -- what's the benefit of using a watch
2 versus a product like the PPG we talked about in Exhibit
3 691?

4 A. Well, we wanted something unobtrusive, because,
5 as I mentioned earlier, in one of the biggest, I think,
6 cases where this kind of product could be useful is for
7 detecting opioid overdose. But of the hundred thousand
8 people that died from opioid overdose last year, 80,000 were
9 illicit users. In talking to some of those people, they
10 were not going to wear a finger sensor that told everyone --
11 signaled that they were potentially addicts.

12 So a watch could be something that's unobtrusive,
13 it looks like something anyone would wear, and yet, if in
14 the middle of the night opioid overdose stopped them from
15 breathing, an alarm could go to wake them and eventually
16 maybe to an ambulance to come rescue them.

17 Q. Exhibit 1493, do you recognize that document?

18 A. Yes, that's a Team Meeting presentation in
19 December 2018.

20 Q. And I'd like you to go to page 10 of this
21 presentation of 2018, at the very top, can we just blow up
22 the first few lines on the Engineering Goals da Vinci.

23 A. Yes.

24 Q. And next to develop wrist-based hardware
25 solution, what is designated in this presentation?

1 A. That it's been 100 percent completed, that we
2 have validated that we can measure SpO2 accurately with our
3 wrist-worn pulse oximeter.

4 Q. And was there also research going on on this
5 subject at Masimo concurrently with Cercacor?

6 A. Yes. Yes, there was a friendly rivalry, a
7 cooperation, but, yes, Masimo was working on their own
8 version as well.

9 Q. And where does all this research and development
10 occur with Masimo and Cercacor?

11 A. Masimo and Cercacor are literally two blocks from
12 each other in Irvine, California.

13 Q. Okay. How involved were you with regard to the
14 Masimo Watch project, you personally?

15 A. Well, as I said, from almost the beginning I
16 wanted to have it. Towards the end, meaning the last
17 several years, I became personally really involved, because
18 I wanted to now see it come to market.

19 We were going after this opioid epidemic problem,
20 and I really thought this watch could be a lifesaver.

21 Q. I'd like you to -- we're going to go on the CBI
22 portion. This is Masimo confidential information.

23 (Whereupon, the hearing proceeded in confidential
24 session.)

25

1 O P E N S E S S I O N

2

3 JUDGE BHATTACHARYYA: Moving to the public
4 record.

5 MR. MUELLER: May I proceed, Your Honor?

6 JUDGE BHATTACHARYYA: Yes, you may.

7 BY MR. MUELLER:

8 Q. Mr. Kiani, over the life of the company, fair to
9 say that Masimo has focused, not exclusively, but has
10 focused on the clinical setting?

11 A. Yes, that is correct.

12 Q. And, fair to say, the vast majority of the Masimo
13 revenues over the years have been in that clinical setting?

14 A. Yes.

15 Q. Now you identified for Her Honor in your
16 testimony earlier several products that you described as
17 consumer products, right?

18 A. Yes.

19 Q. I think there's the SpO2 monitor, right?

20 A. iSpO2, yes.

21 Q. The MightySet; is that correct?

22 A. That is correct.

23 Q. And another one you mentioned was the Radius PPG,
24 correct?

25 A. Yes, that is correct.

1 Q. Now, to be clear, all of these products that you
2 described involve fingertip sensors, correct?

3 A. Correct.

4 Q. So let me just show you an example. This is the
5 Radius PPG. If you could turn to, in your binder, sir, this
6 is CX-0691. I believe it's at tab 2 in your binder.

7 A. In my direct binder?

8 Q. There should be another binder titled
9 "Cross-examination."

10 A. I have not opened it yet.

11 Q. You can go ahead and open it, sir.

12 A. Okay.

13 MR. RE: I also get a copy, I assume? There's
14 two sets.

15 MR. MUELLER: Yes.

16 MR. RE: Can you give us just one moment?

17 MR. MUELLER: Sure.

18 MR. RE: The witness is down the hall. We did
19 not open the box, and it's being opened now in the witness
20 room.

21 MR. MUELLER: Thank you.

22 THE WITNESS: This reminds me when my daughter
23 took the LSAT remotely.

24 I have opened it.

25 Q. Take your time, and if you could, please, turn to

1 tab 2 in the binder, which is CX-0691.

2 A. Yes, I see that.

3 Q. This is a brochure for the Radius PPG, correct?

4 A. Yes, sir.

5 Q. And that's one of the consumer products that you
6 identified for Her Honor, right?

7 A. Yes.

8 Q. And you see in this brochure, on the cover here,
9 we have a woman wearing a hospital gown with the Radius PPG
10 on her wrist, correct?

11 A. Yes.

12 Q. Now if you could please, sir, turn to the very
13 next page, we see the full setup for the Radius PPG,
14 correct?

15 A. "The full setup," what do you -- oh, yeah, I see
16 that, on the left page showing it working with Root.

17 Q. Let's just make sure we understand. The
18 Radius PPG sensor is actually located on the fingertip,
19 correct?

20 A. Yes, where it says Masimo right there at that
21 end, yes.

22 Q. And then it's connected by a cable to a device
23 strapped to the wrist, correct?

24 A. Correct.

25 Q. And that is transmitting to this host device we

1 see here on the right; is that right, sir?

2 A. Yes, that is correct.

3 Q. Now, again, this is a consumer product, meaning
4 it doesn't need to be prescribed by a doctor, correct?

5 A. That is correct, but in this particular case
6 we're showing it's being used in a hospital.

7 Q. Fair enough. And you would agree, sir, and I'm
8 not criticizing the product, but you would agree this is not
9 something that a user could wear walking down the street or
10 jogging.

11 A. That's not true. People do use it in that
12 fashion today.

13 Q. Okay. So your position is this product right
14 here could be used in the way that a consumer wearable
15 product could be used for jogging or exercising; is that
16 your position?

17 A. Yes. In fact, on the next page you see this
18 woman laying down at home, not in a hospital. In fact,
19 that's from our commercial with Morgan Freeman using it at
20 home.

21 Q. Sir, I didn't say at home. I referred to
22 jogging.

23 A. Yeah, yeah, but it's the same. In fact, you made
24 the distinction that the Apple Watch doesn't work for
25 motion. This works through motion and low perfusion. So,

1 yes, people do wear it. They jog with it. We have athletes
2 who exercise with it and can tell the power of their
3 exercise by when their oxygen drops during their exercise.

4 So, yeah, this is worn. It lasts about four or
5 five days, with that single puck, with that battery. And
6 people can wear it continuously. They can take a shower
7 with it.

8 This is meant for untethered, wearable device for
9 both home and hospital, and, I guess, jogging, as you make
10 it sound --

11 Q. Understood. Just as a technical matter, at all
12 times in the use cases you're describing, the user would
13 have a finger clip sensor attached to a cable running down
14 their hand attached to that device strapped to their wrist,
15 correct?

16 A. That's not a finger clip sensor. That's an
17 adhesive wearable sensor. I don't want -- I'm not arguing
18 with you. I'm just trying to make sure you clarify. The
19 fingertip is that alligator-style clip.

20 Q. It's a finger sensor, finger adhesive sensor,
21 attached to a cable running down their hand attached to a
22 device strapped to their wrist, correct?

23 A. That's correct.

24 Q. Okay. Now let me ask you to focus now on the
25 three patents on which you are a named inventor which are

1 asserted in this case. I'm going to refer to them by their
2 last three digits, '501, '502, and '648.

3 Do you have those in mind, sir?

4 A. I do.

5 Q. And if I call those -- I believe the gentleman's
6 name is Poeze. Is that the correct pronunciation?

7 A. Yeah, he was the first named inventor, Jeroen
8 Poeze.

9 Q. So if I refer to these as the Poeze patents,
10 you'll know what I mean?

11 A. Yes, although you mispronounced his last name,
12 I'll know what you mean.

13 Q. What's the correct pronunciation?

14 A. Poeze.

15 Q. Got it. Okay. Let's look at Fig. 3 in these
16 patents. This is a figure that you looked at with Mr. Re, I
17 believe.

18 Just so the record is clear, one of these three
19 is JX-1.

20 A. Do you want me to look at my binder or your
21 binder you gave me?

22 Q. You can look at the Cross-Examination Binder.
23 There's a hard copy of JX-1. I believe it's at tab 3.

24 A. Yes, I found it.

25 Q. You can also look at the screen. We'll pull it

1 up in a moment here. If you could turn in the binder while
2 we're pulling it up here to Fig. 3.

3 A. Fig. 3, yes. C, D, E, which one?

4 Q. This one right here, Fig. 3C --

5 A. Perfect. That's the one Mr. Re showed me.

6 Q. That's right. Now this is showing a finger clip
7 sensor, correct, sir?

8 A. Yes, this is a finger clip sensor.

9 Q. And so the way this would work is a user would
10 insert their finger into this device and then close it down,
11 right?

12 A. Yes.

13 Q. And that region at the bottom center of the
14 screen where it's labeled 322, 323, 320 and 305, you talked
15 about that earlier with Mr. Re, correct?

16 A. Yes.

17 Q. And you told us about how the tissue would be on
18 top of that sensor, correct?

19 A. Correct.

20 Q. And there's the holes that go all the way down to
21 where the photodetectors reside, correct?

22 A. Correct.

23 Q. And readings are taken from those, correct?

24 A. Yes. You either accumulate or you parse, but,
25 yes, you take those detector signals and measure what you

1 need to measure, in this case oxygen or hemoglobin or
2 glucose.

3 Q. Now you would agree with me that nowhere in these
4 patents is there a similar description, similar level of
5 detail, for a watch, correct?

6 A. No, not for a watch. Although there is a
7 wristband device, but there is a lot of description about
8 this being used in different parts of the body, like the
9 forehead, the ear, and the like. Different sizes of
10 patients, from neonates to adults.

11 Q. Sir, stay with my question. Not a watch, right?

12 A. Well, there's a wrist-worn device, but because
13 this would connect to a wrist-worn device, I assume that is
14 not considered a watch, but, yes, there is a wrist-worn
15 device shown.

16 Q. Sir, stay with my question. Not a watch.

17 A. Yes, not a watch. It doesn't have the clock.

18 Q. In fact, sir, as you told us earlier, Masimo, and
19 apparently Cercacor, did work on watches in the mid 2010s,
20 correct?

21 A. Well, once we reduced the power consumption of
22 our algorithm, our set board, yes, we began trying to make
23 wearables and consumer products.

24 Q. And the reduced power consumption that you're
25 describing occurred in the mid 2010s, right?

1 A. That is correct. To the best of my memory,
2 that's when it happened.

3 Q. And because you developed it in the mid 2010s, of
4 course you didn't have possession of those particular ideas
5 back at the time of the Poeze patents when they were filed,
6 correct, sir?

7 A. That's not true. Back even in '91 I had this
8 idea of making a watch out of our technology.

9 Q. Well, sir, I understand you had the idea. You
10 had the aspiration. You hadn't actually pulled it off and
11 come up with the engineering solution until much later,
12 correct?

13 A. Well, the engineering solution included power
14 reduction and size reduction of our pulse oximeter
15 technology. So we were working towards that. Hospitals
16 don't need the power or size reduction because those devices
17 get plugged to the wall by the bedside.

18 So the reason we were pushing and pushing to
19 reduce the size, reduce the power, so we can make it
20 portable, wearable consumer version.

21 Q. I understand that was your goal, sir, but you
22 just told me a couple minutes ago that you solved the power
23 consumption problem in the 2010s, correct?

24 A. Yeah. I don't have the exact date in my mind,
25 but, yeah, right kind of before we began working on iSpO2,

1 and then MightySet on the watch we had gotten the power down
2 to a level where it could be wearable and battery-operated.

3 Q. In the 2010s, correct?

4 A. Yes, sir, to the best of my memory, yes.

5 Q. Now because you came up with that in the 2010s,
6 you were not in possession with that in 2008, correct?

7 A. I'm sorry. What are you -- oh, when we -- well,
8 they're related. If you actually read the patent, it talks
9 about putting the sensor anywhere on the body.

10 You're focusing on the watch. We focus on pulse
11 oximetry, where in the body you could put it. And what this
12 invention showed is that in difficult situations -- in this
13 case hemoglobin or glucose where the signals are tiny -- or
14 are or on the finger or maybe in situations where maybe on
15 the forehead or wrist where the pulse ox is strong but that
16 site is bad, this invention comes in handy to make the
17 measurement.

18 Q. Sir --

19 A. We were in possession of it, yes.

20 Q. Sir --

21 A. With the power -- sorry.

22 Q. I didn't mean to interrupt you. Did you finish
23 your answer?

24 A. No. I would say we were in possession of one
25 piece, but we needed the other piece, the power consumption

1 to come down, to then put it together to make things like
2 iSpO2 and eventually the watch.

3 Q. Sir, you were not in possession as of 2008 of the
4 engineering solution to putting a pulse oximeter in a watch,
5 correct?

6 A. Well, not all of the -- not all the components of
7 it, but some of it, yeah, that's what this patent shows.

8 Q. Sir, you could not build a watch with a pulse
9 oximeter in it; you did not have possession of that idea in
10 2008, correct?

11 A. We did not have feasibility until maybe 2016,
12 2017.

13 Q. Now the patent was filed, the original patent in
14 the Poeze patent family, was filed in 2008, correct?

15 A. The provisional was filed in 2008, that's
16 correct.

17 Q. And, in fact, it was filed on September 20 -- I'm
18 sorry. I'll retract that.

19 It was filed in 2008, but the three patents that
20 are asserted in this case in that same family were filed
21 about 12 years later in September of 2020, correct?

22 A. I know that's -- I think when they fished. I
23 don't know when they were filed. You'd have to talk to our
24 lawyers. Obviously the disclosure is identical, all that
25 changes are the claims, and I don't know when those claims

1 were first sought after.

2 Q. Well, let's pull up the Joint Exhibit that we
3 were just looking at a moment ago, and let's look at the
4 cover.

5 So we have here the '501 patent. This is one of
6 the three asserted in this case, correct?

7 A. Yes.

8 Q. And let's go down to the filing date, which is in
9 the left-hand side, midway down. And do you see, sir, it
10 was filed on September 24th of 2020?

11 A. Yes, I see that. That's when those claims were
12 filed.

13 Q. And let's take a look at JX-2, the '502 patent.
14 We'll take you to the filing date for this one. September
15 24th, 2020. Do you see that, sir?

16 A. Yes, I do.

17 Q. Very same day, right?

18 A. Yes.

19 Q. And let's go to JX-3, the '648 patent, and do you
20 see, sir, that was filed on the very same day as well?

21 A. Yes.

22 Q. So you'd agree that the three patents in this
23 family that are asserted in this case were filed on
24 September 24th, 2020, right?

25 A. Yes.

1 Q. Now that's 12 years after the original
2 provisional application, correct?

3 A. Yes.

4 Q. If we go back to the release dates of the Apple
5 Watches, do you see the Series 6 was released on September
6 18th, 2020?

7 A. Yes, I do see that.

8 Q. Very shortly before these applications were
9 filed, correct?

10 A. Yes, correct.

11 Q. And, in fact, if we go to RX-0333, which is tab
12 14 in your binder, sir.

13 A. Yes, I see the press release from Apple
14 announcing the watch, Series 6.

15 Q. On September 15th of 2020, correct?

16 A. Yes.

17 Q. That's nine days before these three patent
18 applications were filed, right?

19 A. Yes.

20 Q. And it's fair to say, sir, you know of no reason
21 that these three patents could not have been filed earlier
22 than September 24th, 2020, right?

23 A. Well, I think there were reasons it was filed
24 then. I have a vague understanding of some of the reasons,
25 but you should ask the lawyers who did it to why they did it

1 when they did it.

2 Q. Well, let me take you to your deposition. This
3 is RX-1204. Let me take you to your deposition transcript
4 at page 175, lines 14-17.

5 MR. RE: Objection. One moment. Mr. Kiani, do
6 you have a copy of your deposition with you? It should be
7 in one of your notebooks.

8 THE WITNESS: Well, yeah. Which tab am I looking
9 at?

10 Q. Tab 1 in your Cross-Examination Binder. Take
11 your time. Let me know when you're on page 175.

12 A. Yes.

13 Q. Are you there, sir?

14 A. I am.

15 Q. Line 14.

16 Question. And is there any reason that you know
17 of that these three patents could not have been filed
18 earlier than September 24th, 2020?

19 Answer. No.

20 Were you asked that question and did you give
21 that answer, sir?

22 A. Yes, that is correct. That is my understanding
23 at the time. I did not know.

24 Q. All right. Thank you, sir. You can put your
25 deposition transcript aside for the moment.

1 Let me ask you about whether what was known in
2 your view and what was not known with respect to the --
3 these three patents on which you're a named co-inventor.

4 LEDs, light-emitting diodes, with multiple
5 wavelengths had been used in physiological measuring devices
6 before 2008, correct?

7 A. Yes.

8 Q. Before 2008 there had been physiological
9 measuring devices with multiple LEDs emitting different
10 wavelengths of light, correct?

11 A. That was Masimo's invention, rainbow«.

12 Q. Before 2008, correct?

13 A. That is correct.

14 Q. And those were in public sale before 2008,
15 correct?

16 A. Correct.

17 Q. And there was also physiological devices with
18 multiple photodiodes before 2008, correct?

19 A. Correct.

20 Q. So, in fact, there were multiple detector
21 physiological devices before 2008, correct?

22 A. That's correct.

23 Q. Now you weren't the first to invent photodiodes
24 configured to receive light attenuated by the tissue of a
25 user, right?

1 A. That is correct.

2 Q. In fact, that was an old idea?

3 A. Yes, absolutely. Sorry.

4 Q. I'm sorry. I didn't mean to interrupt.

5 A. I apologize. I was just saying that concept, of
6 course, dates back to even the oximeters before pulse
7 oximeters, before Aoyagi invention, yes.

8 Q. You'd agree with me, sir, that Masimo wasn't the
9 first to invent a user-worn device that could take
10 physiological measurements from photodiodes, right?

11 A. That is correct.

12 Q. Nor the first to invent a user-worn device that
13 could transmit measurements wirelessly, right?

14 A. Yes, I believe -- I believe that's correct, yes.

15 Q. Nor the first to invent a user-worn device with a
16 touchscreen, correct?

17 A. Yeah, I think so. I think you're right. We were
18 the first, but I don't believe this patent was first to
19 disclose that.

20 Q. It came before this patent; is that right, sir?

21 A. Yes, the way you asked it, yeah.

22 Q. And, of course, wrist straps for various types of
23 devices have been around forever, right?

24 A. Yes, they have.

25 Q. Now let's talk a little bit about light piping, a

1 subject you discussed at some length with Mr. Re.

2 Light piping is another problem that you have con
3 fronted over the course of your time at Masimo, correct?

4 A. That is correct.

5 Q. And you and your colleagues viewed that as a
6 substantial challenge to overcome, right?

7 A. Yes. Trying to measure either during motion or
8 very low perfusion situations light piping becomes a
9 problem.

10 Q. If I understood your testimony earlier, you had
11 achieved mechanisms and techniques for dealing with the
12 light piping problem by the early to mid-'90s, correct?

13 A. That is correct.

14 Q. And, in fact, you were offering for sale
15 products -- if you could remind me -- was it LPN sensors?

16 A. LNOP.

17 Q. Got it. You were offering those as of 1994, I
18 think you said?

19 A. 1996.

20 Q. I'm sorry, 1996. So the light piping techniques
21 that you had developed were in public sale as of 1996,
22 correct?

23 A. Not all of them, the particular design that we
24 had at the time dealt with light piping, but that design
25 wouldn't have worked for what we were doing later, which is

1 in this patent.

2 Q. Now I want to ask you a very specific question.
3 In your direct testimony with Mr. Re earlier today, you did
4 not show Her Honor any portions of the '501, '502, or '648
5 patent specifications that describe techniques for dealing
6 with light piping, correct?

7 A. Yes. I wasn't asked that, but it's in here, and
8 there's a lot of discussions about it.

9 Q. Protrusion, I believe you touched on that subject
10 also, right, sir?

11 A. Yes, I did.

12 Q. You would agree that convex protrusions were
13 known long before these three patents, the '501, '502, and
14 '648 were filed for, correct?

15 A. No. I believe, to my understanding, we were the
16 first to actually do this convex protrusion when we actually
17 made these products that are the subject of the 2008 filing.

18 Q. When you say made these products, you understand
19 the only domestic industry product being alleged for these
20 patents in this case is the Masimo Watch, do you understand
21 that, sir?

22 A. I do. It surprises me because we do use these in
23 other domestic industry products, but, yes, I've learned
24 that this morning.

25 Q. And you're not trying to change the position now,

1 are you?

2 A. I don't know if we can, but I don't think it's
3 true.

4 Q. Okay. In any event, the Masimo Watch was not in
5 existence in 2008, correct?

6 A. No, it was not.

7 Q. Masimo hasn't licensed these three patents to any
8 other companies, correct?

9 A. That is correct.

10 Q. And these three patents have not been recognized,
11 these patents themselves, '501, '502, '648, have not been
12 recognized in any industry journals or publications,
13 correct?

14 A. Yes. Other than discussing them for our case,
15 I've not seen anything.

16 Q. All right. I want to talk a little bit without
17 getting into the details, you have also, your company, I
18 should say, has also filed a lawsuit against Apple in the
19 Central District of California, correct?

20 A. That is correct.

21 Q. And we won't get into the details today, that's
22 for another court, but you have made trade secret
23 allegations and patent allegations in that case, correct?

24 A. That is correct.

25 Q. Now the patent allegations were stayed or paused

1 pending review of those patents in the Patent Office through
2 what are known as IPR proceedings, correct?

3 A. Yes, I believe Apple filed 20 plus IPRs
4 against -- I think ten patents we filed in that case.

5 Q. And you were dissatisfied with the fact that the
6 case was stayed, correct?

7 A. Yes. Obviously, as any plaintiff, I'd like the
8 case to move forward.

9 Q. And that was one of the reasons why you filed the
10 complaint that led to this investigation, right, sir?

11 A. Yes, it is. It is. As I said earlier,
12 unfortunately, District Court patent cases I've learned take
13 several years.

14 Q. Now some of the patents in the District Court
15 case that were subjected or became the subject of IPR
16 proceedings are related to the '501, '502, and '648 patents
17 in this case, correct?

18 A. Correct.

19 Q. And you understand the Patent Office has made
20 some determinations about those patents in the IPR
21 proceedings, right?

22 MR. RE: Objection, Your Honor. This is an
23 argument that was not made in the pre-hearing briefing. I
24 see no relevance. And very confusing to untangle if
25 Mr. Mueller is suggesting that somehow these IPRs bolster

1 his case with regard to the patents that are in this case
2 where all the IPR information was, in fact, submitted to the
3 Patent Office. I don't see the connection in how this
4 argument was previously made in the pre-hearing brief.

5 MR. MUELLER: I'd say two things, Your Honor.
6 One, Mr. Re referred to other litigation this morning that
7 has absolutely nothing to do with this case. I objected.
8 Your Honor overruled my objection with respect to the
9 Nellcor case, for example.

10 In distinction with those cases, which have
11 nothing to do with this case, these IPR proceedings are
12 directly connected to the same family members of these three
13 patents. In fact, 383 of the 384 claims that have been
14 reviewed by the PTAB in the IPR proceedings have been
15 invalidated, 383 out of 384.

16 So, yes, we do think that bolsters our case on
17 invalidity, that 383 out of the 384 claims that have been
18 reviewed by the IPR proceedings that relate to the patents
19 in this case have been invalidated.

20 So I would say that, Your Honor. But I would
21 also say, what I would also say is, to the extent -- same
22 limitations -- I've just been given a note by Ms. Frazier
23 making the point that these also include claims with some of
24 the same limitations at issue in this case.

25 It also goes to the motive for Masimo filing this

1 case, namely, the stay for some of these same patents.

2 So I actually think there's a direct connection,
3 a direct nexus, between these IPR proceedings and the
4 results of those IPR proceedings in this case.

5 The last point I would make, Your Honor, is the
6 only patents -- or the patents in this particular case have
7 not yet gone into IPR proceedings. So you will be the first
8 to assess the invalidity of these particular claims, but of
9 the 384 related claims, 383 have been invalidated.

10 MR. RE: Your Honor, my objection was it wasn't
11 in the brief. I objected. Where is that -- how is that
12 responsive to the fact that this argument has never been
13 made.

14 Ms. Frazier, on Friday, her sole reason for
15 participating on Friday was to hold us to the briefing and
16 the disclosures. Where was there any argument about the
17 relevance of these IPRs with regard to the claims at issue
18 in this case. I saw nothing about that. And I think it's
19 complete -- I think she used the word sandbag -- when you
20 make a very complicated argument like this as if this
21 bolsters your invalidity case.

22 And the reason why I discussed Masimo's
23 leadership in the field of pulse oximetry is because Apple
24 sought our help. And they're making a nonobviousness
25 argument.

1 So there's a big difference. And what I heard
2 Mr. Mueller just say, since I got overruled on something I
3 think was irrelevant, let me do something that's irrelevant
4 too. That is not proper advocacy. Where in your brief did
5 you make any argument about this connection between the IPRs
6 and the claims at issue, that's what I -- this is why it's a
7 new argument to measure, as I sit here.

8 MR. MUELLER: I would just say -- I'm sorry.

9 JUDGE BHATTACHARYYA: Go ahead.

10 MR. MUELLER: Very, very briefly. Number one,
11 I'm not making the same objection. The Nellcor case, for
12 example, has utterly nothing to do with this case, whereas
13 these IPR proceedings involve related patents in the same
14 family. Point one.

15 Point two, I don't have a pincite for Your Honor
16 right now on the pre-hearing brief, but I believe this has
17 been part of the expert reports. The expert reports of our
18 technical experts have cited these IPR proceedings, so this
19 is a preserved position.

20 But, in any event, Your Honor, we can take it up
21 later on, if it would make things easier right now. But I
22 do want to say, quite clearly, this is not the same thing as
23 citing to Nellcor. These are the same patents in the same
24 family, and they have been invalidated far over 99 percent
25 of the time.

1 JUDGE BHATTACHARYYA: Let's take a short recess.
2 One minute.

3 (Brief interruption.)

4 JUDGE BHATTACHARYYA: We can go back on the
5 record. I'll wait for Mr. Mueller.

6 I am overruling the objection. The question can
7 be asked.

8 Mr. Kiani, to the extent you have knowledge, you
9 should answer.

10 A. Yes, Your Honor. My understanding is that the
11 patents in the District Court case are broader, and what
12 I've learned is that, when we filed these patents, we
13 included some of the prior art that Apple had found along
14 with the IPR filings. So the Patent Office could view these
15 new claims we were asking in view of all of it.

16 So I don't understand Mr. Mueller's comments
17 about what's happened on the IPR side as it relates to this,
18 because these are narrower claims.

19 Q. Mr. Kiani, the record will speak for itself, but
20 you do not contest my suggestion that 383 of the 384
21 reviewed claims in this family have been invalidated by the
22 Patent Office, correct?

23 A. Well, I never knew the numbers, sir, but I also
24 know it's on appeal with the Federal Circuit Court of
25 Appeals. So I don't think it's complete. Besides, that

1 prior art on those patents that were broader have been given
2 to the Patent Office when they issued these with narrower
3 claims.

4 Q. Again, the record will speak for itself.

5 You would agree with me, Mr. Kiani, that there
6 are no IPR proceedings yet involving the three patents in
7 this family in this investigation, correct?

8 A. Yes. I don't get to ask the questions, but I
9 don't know why Apple didn't file them.

10 Q. Well, sir, you understand Her Honor will be the
11 first to assess the invalidity of those claims, right?

12 A. I am happy that she will.

13 Q. And I understand that you will be appealing the
14 earlier decisions, but you are not contesting my recitation
15 of the fact that 383 of the 384 claims have been invalidated
16 to date, correct?

17 A. I don't know, sir, but I will take your word for
18 it.

19 Q. Okay. Now, the '501, '502, and '648 patents are
20 not directed to, for example, a method for transmitting
21 email from a user-worn device, correct?

22 A. Correct.

23 Q. They are not for text messaging, credit?

24 A. Correct.

25 Q. They are not for sending or receiving text

1 messages or emails from a wrist-worn device, correct?

2 A. Correct.

3 Q. They are not for electronic payments?

4 A. No, they are not.

5 Q. Not for GPS?

6 A. No.

7 Q. Not for music or podcasts?

8 A. No.

9 Q. Not for an altimeter?

10 A. No.

11 Q. Not for a compass?

12 A. No.

13 Q. Not for magnetic charging, sir?

14 A. No.

15 Q. Not for microphones or speakers?

16 A. No.

17 Q. Not for Wi-Fi -- I'm sorry.

18 A. The product does have speakers and I think a
19 microphone, but, no, no, the patents are not about that.

20 Q. And the patents are not for Wi-Fi or cellular
21 conductivity, correct, sir?

22 A. Not the claims in this case, no.

23 Q. Now these three patents, the '501, '502, and '648,
24 are also not directed at an industrial design for a watch,
25 correct?

1 A. That's correct.

2 Q. And you understand what an industrial design is,
3 right?

4 A. Yes.

5 Q. And you understand that for consumer products
6 industrial design can create significant engineering
7 challenges, fair?

8 A. Fair.

9 Q. And this patent does not teach ways to overcome
10 the industrial design related engineering challenges in a
11 watch, correct?

12 A. Not -- not the look of the product, no.

13 Q. Now the Masimo Watch, we're going to talk about
14 some of the confidential information about that product
15 shortly, but your position is the Masimo Watch is now ready
16 for at least a limited release; is that right, sir?

17 A. It is in limited release, yes.

18 Q. Well, to be clear, you can't buy it in a store
19 yet, correct?

20 A. That's the definition of a limited market
21 release, yes.

22 Q. Just so the record is clear, you cannot buy it in
23 the store yet, right?

24 A. Oh. No, you can't. You can get on our website
25 and order one provided you agree to give us feedback on the

1 product, and if we make any substantial changes that you'll
2 let us take it back if we want to give you a new one.
3 That's the agreement.

4 Q. Now you just held up what I believe you're
5 contending is one of those watches; is that right, sir?

6 A. That is correct.

7 Q. Now I took your deposition a while back. Is that
8 the same watch you were wearing that day?

9 A. Yes, it is.

10 Q. All right. And you would agree with me that that
11 watch looks an awful lot like the Apple Watch.

12 A. It looks similar. It's got that same ugly Casio
13 square shape, but it is what it is.

14 Q. It looks a lot like the industrial design of the
15 Apple Watch, correct?

16 A. Correct, from afar.

17 Q. Now that watch, the Masimo Watch watch that
18 you're wearing, even this limited release that you just
19 described -- we're going to come back to that -- has only
20 occurred very recently, right?

21 A. What has occurred very recently?

22 Q. This limited release that you just described.

23 A. Yes, May 2nd is when we did it, yes.

24 Q. May 2nd, do I have that right?

25 A. Yes, sir.

1 Q. So that's a little over a month ago.

2 A. That's correct.

3 Q. Now, the Apple Watch, the original Apple Watch,
4 was released in 2015, correct?

5 A. Yes. You're welcome to sell all you want of
6 that.

7 Q. And the Series 6 and the Series 7 for which
8 you're seeking an import ban were released in 2020 and 2021,
9 right?

10 A. Yes, that's correct. I think September of each
11 year.

12 Q. And, of course, those dates are before the May
13 limited release date that you just gave us, correct?

14 A. Yes.

15 Q. And we can agree on this, sir. Apple could not
16 have copied the look of the Masimo Watch, because when Apple
17 created the Apple Watch models at issue in this case the
18 watch didn't exist, correct?

19 A. Correct.

20 MR. MUELLER: At this point, Your Honor, I'm
21 going to ask to go on the Masimo confidential record.

22 (Whereupon, the hearing proceeded in confidential
23 session.)

24

25

1 O P E N S E S S I O N

2

3 MR. RE: Thank you, Your Honor.

4 BY MR. RE:

5 Q. Mr. Mueller showed you where the Radius PPG was
6 connected or next to Root. Do you remember that discussion?

7 A. Yes, I do.

8 Q. And then you directed him to the next page where
9 there was a woman sitting at home with the Radius PPG on it,
10 right?

11 A. Yes.

12 Q. Now can you explain what I think you were trying
13 to explain during your cross-examination on whether the
14 Root, is that a home device or is that for the hospital?

15 A. The Root is for the hospital. At home you use a
16 phone, a smartphone to see the information.

17 Q. So the consumer doesn't buy that larger item
18 shown on page 2.

19 A. No, I don't believe they would. That's overkill
20 for them.

21 Q. Right. And so in the picture with the person at
22 home, they could use Radius PPG with the iPhone?

23 A. That's correct.

24 MR. MUELLER: I'm going to object to the leading,
25 Your Honor.

1 BY MR. RE:

2 Q. Okay. Does the Radius PPG require Root?

3 A. No, it does not. It can work with any Bluetooth
4 device.

5 Q. And what are Bluetooth devices that work with
6 Radius PPG?

7 A. Well, a whole host of them, from the iOS phones,
8 to the Android phones, to the tablets that you can buy. So,
9 yeah, any of them.

10 Q. Okay. One other thing. You had early in your
11 testimony, I think it might have been before the lunch
12 break, you and Mr. Mueller were having a debate about
13 evidence of whether, you know, Apple could have gotten ideas
14 from Masimo. Do you remember that?

15 A. I do.

16 Q. And you kept saying I don't have any direct
17 evidence, it's only circumstantial, right?

18 A. Yes.

19 Q. What did you mean by that?

20 A. Well, no other company except the one that took
21 30 of our engineers, including our CTO, who was an inventor
22 of the three patents in this case came up with a
23 convex-shaped sensor for monitoring pulse ox.

24 So that's one of the evidence as I think leads me
25 to believe that they took it from us. And also other

1 companies that do copy Apple, of course they are going to
2 copy Apple, and we're going to have more people with these
3 convex-based sensors. Before then, nobody else had it.

4 Q. And Mr. Mueller also asked you about that meeting
5 that occurred in May 3rd, 2013. Do you remember that?

6 A. Yes.

7 Q. And --

8 MR. MUELLER: I'm sorry to interrupt. If we're
9 going to get into that, if we could go on the Apple-Masimo
10 confidential record.

11 MR. RE: I won't get into the content of the
12 meeting. I didn't intend to. I just want to ask one
13 question.

14 Q. Was there any agreement signed prior to the
15 meeting at Apple in May of 2013?

16 A. Yes. Apple asked us to tell them confidential
17 information, a product roadmap, how and why it worked, so we
18 insisted on an NDA, and we had a nondisclosure agreement
19 between us for that meeting.

20 Q. And was confidential information exchanged
21 pursuant to that signed NDA?

22 A. Yes.

23 MR. RE: I have no further questions, Your Honor.

24 MR. MUELLER: Just briefly, Your Honor.

25 MR. RE: Oh, is there two rounds for every

1 witness?

2 JUDGE BHATTACHARYYA: If you brought up something
3 in redirect that Mr. Mueller wants to respond to, then
4 that's acceptable.

5 MR. RE: Okay. Thank you.

6 RECROSS-EXAMINATION

7 BY MR. MUELLER:

8 Q. I'll keep this brief.

9 Mr. Kiani, you just heard a reference to this
10 meeting you had with Apple, correct?

11 A. Correct.

12 Q. And some information that was provided, right?

13 A. Yes.

14 Q. Now you were at that meeting, correct?

15 A. I was.

16 Q. And, sir, as you said earlier, you have no direct
17 evidence whatsoever of copying by Apple of the features at
18 issue in this case, correct?

19 A. Correct.

20 Q. Now you were at the meeting, so, presumably, if
21 there had been such information at the meeting, you would
22 have told us about it earlier, correct?

23 A. No one has asked what we discussed at the
24 meeting. I'm happy to answer your questions on that.

25 Q. My question is simply, you have no direct

1 evidence whatsoever of any copying of the features at issue
2 in this case, correct?

3 A. That's correct.

4 Q. Now last question. You mentioned this convex or
5 a convex sensor was an indication of something improper by
6 you, right, or by Apple?

7 A. By Apple, yeah.

8 Q. Do you understand, sir --

9 A. If I may say, I wasn't getting into the
10 legalities of it. You asked about circumstantial. I guess
11 Mr. Re asked about what's circumstantial on copying, and the
12 convex was one of them.

13 Q. Sir, you understand the convex shape on the back
14 of the watch was in the Series 0 in 2015. Do you understand
15 that?

16 A. Marcelo started January 2014 at Apple.

17 Q. Sir, you understand the Series 0 is not accused
18 of infringement in this case, correct?

19 A. Correct.

20 Q. You understand there's no contention by Masimo,
21 not one, that the Series 0 infringes any of the five patents
22 in this case, correct?

23 A. Correct, nothing until Series 6 and 7 in this
24 case.

25 Q. And the Series 0 had a curved rear of the watch,

1 correct?

2 A. Not exactly like Series 6 and 7, but yes.

3 Q. And it had sensor technology within it, correct?

4 A. Not for pulse oximetry.

5 Q. It had curved sensor, a curved back surface and
6 sensors within it in the Series 0, correct?

7 A. It is different, and that's why we're not
8 alleging those including Series 4 and 5 in this particular
9 case.

10 Q. Sir, please --

11 A. I'm agreeing with you, but I'm just clarifying
12 that they're different. Sorry.

13 Q. Please, sir, stay with my question. The rear of
14 the Series 0 was a domed back crystal, correct?

15 A. Yes.

16 Q. And there were physiological sensors in that
17 device, correct?

18 A. Not -- yes, but not pulse oximetry, yes.

19 Q. And it's not accused of infringement in this
20 case, right?

21 MR. MUELLER: Thank you, sir. No further
22 questions.

23 (Clarification by reporter.)

24 THE WITNESS: I believe I said they're not in
25 this case, ma'am.

1 THE REPORTER: Thank you.

2 JUDGE BHATTACHARYYA: Mr. Kiani, thank you so
3 much for your testimony.

4 THE WITNESS: Thank you, Your Honor. Thank you
5 for your time.

6 MR. RE: Thank you, Your Honor.

7 MR. MUELLER: Your Honor, while we're switching
8 to the next witness, Mr. Selwyn will do the
9 cross-examination of the next witness.

10 JUDGE BHATTACHARYYA: Thank you.

11 MS. SWAROOP: Your Honor, I think during the
12 course of the morning session we did send Your Honor a list
13 of the exhibits that we would like to have moved in without
14 a sponsoring witness. We're happy to do that now or to move
15 to our next witness.

16 JUDGE BHATTACHARYYA: If it's all right with you,
17 why don't we move to our next witness and do that at the end
18 of the day. Is that all right?

19 MS. SWAROOP: That's fine, Your Honor.

20 For our next witness, Complainants call Mohamed
21 Diab, and Mr. Lateef will be conducting the examination of
22 Mr. Diab.

23 MR. LATEEF: Just waiting for the witness,
24 Your Honor, to get to the witness room.

25 JUDGE BHATTACHARYYA: Mr. Diab, are you ready to

1 proceed?

2 THE WITNESS: I am. Sorry. I had to take off my
3 jacket.

4 JUDGE BHATTACHARYYA: Do you understand that you
5 have an obligation to tell the truth here today?

6 THE WITNESS: I do.

7 MOHAMED DIAB,

8 having been first duly sworn and/or affirmed
9 on his oath, was thereafter examined and testified as
10 follows:

11 JUDGE BHATTACHARYYA: You may proceed.

12 DIRECT EXAMINATION

13 BY MR. LATEEF:

14 Q. What do you do, Mr. Diab?

15 A. I am an engineer at Masimo.

16 Q. And what is your current position at Masimo?

17 A. I'm a fellow scientist.

18 Q. What year did you start working at Masimo?

19 A. 1989.

20 Q. And how long have you been working at Masimo?

21 A. Ever since.

22 Q. Okay. Where did you attend college?

23 A. Cal State Fullerton.

24 Q. And what degree did you earn there?

25 A. Bachelor in electrical engineering with emphasis

1 on computer engineering.

2 Q. What year did you graduate?

3 A. 1986.

4 Q. Briefly could you tell us the kind of work that
5 you did at Masimo in the 1990s?

6 A. Sure. At that time we were working on our first
7 pulse oximeter, and I was involved in the hardware design,
8 the sensor designs and the algorithm designs. The algorithm
9 is what takes the signal from the sensor, calculates pulse
10 rate, saturation and other parameters.

11 Q. Great. Did you work on measuring
12 carboxyhemoglobin when you were at Masimo?

13 A. Yes. We have started a project at Masimo to work
14 on the carboxyhemoglobin and other parameters that are
15 considered, they call them hemoglobin species, oxygen is one
16 of them, carboxy is another when it binds with hemoglobin,
17 methemoglobin, and total hemoglobin as well.

18 Q. Can you explain the importance of measuring
19 carboxyhemoglobin --

20 A. Yes.

21 Q. -- noninvasively?

22 A. Carboxyhemoglobin, carbon monoxide, when it binds
23 with oxygen, with hemoglobin, it has the affinity of 200
24 times what oxygen does. In other words, it displaces the
25 oxygen. It won't let the oxygen bind with the hemoglobin.

1 So it turns the hemoglobin into a dysfunctional
2 hemoglobin, and, hence, the carbon monoxide poisoning that
3 we hear. And it's very hard to diagnose because it looks
4 like a flu. People with a high carbon monoxide poisoning,
5 they go to the hospital, they look bright red and they look
6 like they have a flu.

7 Firefighters suffer because of that. And many
8 times when you have to buy appliances, like you buy a
9 furnace that doesn't have good combustion, people get carbon
10 monoxide poisoning.

11 Q. What research did you do with respect to
12 carboxyhemoglobin?

13 A. We looked into, first of all, how it interacts
14 with tissue, and I spent quite a bit of time looking into
15 the theory behind it. Then we moved into a computer
16 simulation trying to understand can we build a device that
17 will measure carboxy noninvasively, carboxyhemoglobin in the
18 tissue noninvasively, with reasonable accuracy that is
19 relevant to the field.

20 And the result of those simulations, which took
21 about a year, is that, yes, we could, and we also figured
22 out that we can measure the other parameters, the
23 methemoglobin and total hemoglobin as well.

24 Q. With respect to carboxyhemoglobin, who else
25 worked with you on developing that technology?

1 A. We hired Mr. Marcelo Lamego after two years of my
2 work on that one, and after that eventually we created a
3 team, we called it the rainbow« team, and the name rainbow«
4 came from the number of wavelengths or number of LEDs that
5 were needed in the sensor.

6 Typically, if you look at our oxygen sensor, it
7 has two of them, it looks red, this one has many of them, so
8 we called it rainbow«.

9 Q. We're going to start a section that discusses
10 Masimo CBI.

11 Could we please go on the Masimo CBI record?

12 (Whereupon, the hearing proceeded in confidential
13 session.)

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3 JUDGE BHATTACHARYYA: Moving back to the public
4 record.

5 BY MR. LATEEF:

6 Q. Okay. Could you take a look at Joint Exhibit
7 007?

8 A. Okay.

9 Q. Can you tell me what this is?

10 A. Yeah. So this is a United States Patent No.
11 7,761,127. I am an inventor on this patent.

12 Q. Okay. And who owns this patent?

13 A. I believe initially it was Masimo Laboratories.
14 That's the company we spun off in 1988. But today's
15 Cercacor, it was renamed to Cercacor.

16 Q. Okay. And does this patent relate to your work
17 on measuring carboxyhemoglobin?

18 A. Yes.

19 Q. Okay. Can you explain at a very high level how?

20 A. Okay. So this is a patent that describes a
21 sensor that can take 16 LEDs with many novel features, and
22 the part that I just explained about how we can predict the
23 wavelengths using the thermistor and the thermal mass is
24 described in this patent.

25 Q. Okay. Let's take a look at Fig. 2A. And can you

1 describe what is shown here?

2 A. This is something you may have seen in a
3 hospital. It's called a clip sensor. This is a sensor that
4 goes and clips on the digit, and it has LEDs in it. It may
5 be a measure -- oxygen saturation or other parameters for
6 rainbow«.

7 Q. Let's move to Fig. 4. Can you explain what we're
8 looking at here?

9 A. So this is an expanded view of that particular
10 sensor. So if you were to break it up and open it up and
11 look inside of it, this is what you're going to see. On the
12 left there is a cable. On the top and the bottom there are
13 those shelves, the top and the bottom shelves. Then in the
14 middle there is -- there are a couple of pads, very flexible
15 pad.

16 And if you look at 600, that's where the assembly
17 is, and this is what we were talking about before.

18 Q. Okay. And 600 is now on the screen. Do you see
19 that?

20 A. Yeah. This is like a 4x8 millimeter. This is
21 our first revision of it, just to give you have a sense of
22 the size, 4x8 millimeter.

23 Q. Let's go to Fig. 6. And can you explain what
24 we're looking at here?

25 A. So this is the same sensor assembly but zoomed

1 in. And what you see on the right side, you see the LEDs.
2 Those are little, look like sugar cubes. Those are the
3 LEDs. Our sensor design can accommodate 16 of them.

4 Q. Okay. Let's go to Fig. 12. Could you explain
5 this figure to us?

6 A. Sure. This is a block diagram of that
7 thermistor. So you see -- not thermistor -- of the
8 assembly. This is the block diagram, top-level block
9 diagram.

10 You see the LED on the left, the light emitter.
11 In the middle you have the thermal mass, which is really the
12 substrate, described here as a substrate. The emitters pump
13 the heat into the thermal mass, and when we described that
14 energy right here with two arrows. And on the right side
15 you have this temperature sensor, which in our case, as an
16 example of one embodiment, was a thermistor, and it is
17 attached to the other side of the substrate.

18 Q. Can you explain what a thermistor is?

19 A. A thermistor is a device that it changed its
20 resistance with temperature. So if you measure the
21 resistance, you can look up what the temperature is, and
22 it's really accurate.

23 Q. Thank you. Can we turn to Fig. 14 in the patent?

24 Can you explain what we're looking at here on
25 Fig. 14?

1 A. Sure. So this is really a cross-section across
2 that emitter assembly, and it shows the composition of the
3 board itself.

4 So the board typically is made of material called
5 FR-4. It's some kind of a material that is used in all of
6 the computer boards. If you have a computer at home and you
7 look and you open it up and you look at the board, it will
8 be probably an FR-4 board. It's used widely in the computer
9 industry in electronics.

10 You could see sandwiched in between -- first of
11 all, the top layer, we call it the component layer, that's
12 where the LED goes, and this is a metallized layer,
13 conductive, probably copper.

14 Then there are layers 2, 3, 4, and 5. These are
15 inner layers. Also they are made out of, typically, copper.
16 They are metallized layers. And there is a bottom layer
17 where we attach the thermistor.

18 Q. Okay. And are these layers connected in any way?

19 A. Absolutely. You have to connect them; otherwise,
20 the heat will not flow because the FR-4 is a very good
21 insulator. It is made out of fiberglass.

22 So we have via, we call via or through holes that
23 connect each one of those layers to the next. So the heat
24 will be generated on the top where the LEDs are, and it
25 flows down through all of the layers.

1 Q. Is --

2 A. Through those conductive holes.

3 Q. Yes. Does this structure keep the temperature of
4 this thermal mass constant?

5 A. No. No. As actually you've seen it before in
6 the simulation, the temperature is not constant. It
7 actually follows the temperature of the LED in sync, and
8 that actually is the main trick.

9 Q. And maybe you can explain again how, despite the
10 changes in the temperature, the thermistor is related to the
11 wavelength of the LEDs.

12 A. Well, what happened right here is that, I'm going
13 to use an example to help us analogy -- to help us in this,
14 we have attached those LEDs thermally to the thermal mass.

15 And I'm going to use an example of people in an
16 elevator and you want to know the height of the people.
17 Actually what you want to do is how high their hair or their
18 head, their scalp, from the base floor.

19 So how do you do it? We first ask them to take
20 off their shoes, stand, normalize them, have them stand
21 barefoot on the elevator. And then we find out what is the
22 level of the elevator, the tenth floor. So the floor of the
23 elevator is akin to the thermistor in a thermal mass
24 temperature. That's where things are standing.

25 And then every person has their own different

1 height, just like those LEDs, each one has its own junction
2 temperature. But once you do that, you calculate the height
3 of each one of those, and you can say, okay, well, the
4 height of this person from the first floor is their height
5 from the floor of the elevator plus where the elevator is.

6 So that's pretty much what we do with our
7 invention. We find out that we can measure the temperature
8 of the thermal mass and then calibrate each LED
9 independently to figure out what is the wavelength of each
10 one of them, and we validated our results two ways, one,
11 with a spectrophotometer, and two, with the results of the
12 studies that we have done.

13 Q. Thank you. Let's now talk about the Masimo
14 products. Are there Masimo products that use this
15 wavelength correction?

16 A. Yes. All of rainbow« sensors use wavelength
17 correction except for a couple of them. One is an acoustic
18 sensor, and the other one, it's called Light Set 1, but the
19 rest of them all use temperature correction.

20 Q. Okay. Let's talk about the rest of them. These
21 rainbow« sensors, what kind of products do they connect to?

22 A. They connect to the board, rainbow« device
23 essentially, and those they have what we call MX board, and
24 there are many revisions of those MX boards, 1, 3, 5. I
25 don't know where we are right now, but the temperature of

1 each one of them as well as the wavelength as well as the
2 signal coming from each LED is taken inside the board,
3 processed, corrected, based on what the wavelength is, and
4 then some kind of a calculation is done to come up with
5 saturation, carboxyhemoglobin, methemoglobin, pulse rate, or
6 what other parameter we have.

7 Q. Okay. Can you tell me the name of some of the
8 rainbow« products?

9 A. Well, the very first one that we have released is
10 RAD-57. I'm very proud of that one. That was the very
11 first device that were able to measure noninvasively
12 carboxyhemoglobin in the human body.

13 Q. Okay. Going back to the sensors, do all rainbow«
14 sensors besides the two that you mentioned have some common
15 features?

16 A. Yes.

17 Q. Okay. Let's talk about those common features.
18 Let's talk about the LEDs. Do all rainbow« sensors have --

19 A. Yeah, they all have LEDs. That's really common.
20 Typically pulse oximeter sensor that you see in the
21 hospital, the one with the red color, they have two, one
22 red, that you see. These all have more than two. Typically
23 eight or more.

24 Q. Okay. And do these sensors all have thermistors?

25 A. Yes, they all do have thermistors with a thermal

1 mass.

2 Q. And do all of these have detectors as well?

3 A. Yes, they have at least one or more detector.

4 Q. Okay. And what do the devices like the RAD-57 do
5 with the signals from the sensor?

6 A. Could you repeat? I'm sorry. I couldn't hear
7 you.

8 Q. Oh, I'm sorry. What do the rainbow« devices such
9 as the RAD-57 do with the signals from these rainbow«
10 sensors?

11 A. Okay. So, basically, we isolate what we call a
12 photoplethysmograph signal. It's really the heart -- that's
13 how we can isolate it from the rest of the signals.

14 We isolate that, and it's really not trivial to
15 get a reliable one. We have -- let's say you have an LED.
16 You're going to have eight of those signals. We have a
17 temperature coming in. We do the correction for the
18 wavelengths, and these get adjusted. And at the end we have
19 a calculation that is done based on that. And then there is
20 a display that shows up.

21 Q. You mentioned some calculations that are done.
22 Did you write any code for this wavelength correction?

23 A. I wrote actually the original code for all of
24 rainbow« including the wavelength correction.

25 Q. Okay. And is there code in the production

1 releases of the Masimo devices?

2 A. Well, the software folks took my code and
3 obviously they said, okay, we need to modify, restructure
4 it. And so my code on its own is not there, it's the
5 modified version of it is there, and obviously there were
6 more additions over the years.

7 Q. And does the --

8 JUDGE BHATTACHARYYA: I'm sorry to interrupt.
9 It's time -- it's about time for our afternoon break. If
10 you just have a few more questions for the witness, then we
11 can finish that first, but, otherwise, we should take the
12 break now.

13 MR. LATEEF: We can take the break now.

14 JUDGE BHATTACHARYYA: All right. Then we're in
15 recess for 15 minutes.

16 (Whereupon, the proceedings recessed at 3:21
17 p.m.)

18 (In session at 3:35 p.m.)

19 JUDGE BHATTACHARYYA: We are on the public
20 record.

21 Mr. Lateef, you may continue.

22 BY MR. LATEEF:

23 Q. Okay. Mr. Diab, you have a binder in front of
24 you, and I'd like you to take a look at what should be in
25 your first tab, CPX-125. Sorry. 152.

1 A. Okay.

2 Q. Do you recognize this?

3 A. This is part of the software that does the
4 wavelength correction in the rainbow« product.

5 Q. Okay. You can put that away.

6 Could you next take a look at CX-678? It's also
7 on the screen in front of you.

8 A. 678, okay.

9 Q. Yes, it's also on the screen. Okay.

10 Do you recognize what this is?

11 A. Yes. This is the RAD-57 Operator Manual, that's
12 the device we introduced in 2005.

13 Q. And do you know the date of this Operator's
14 Manual?

15 A. Probably a later date than 2005. It should be
16 very similar.

17 Q. If we can move forward a couple pages.

18 A. I think 2018, something like that. But the
19 original one was very similar to this.

20 Q. Okay. And let's go back to talking about the
21 sensors again, the rainbow« sensors that we were discussing.

22 Where are the emitters placed in a rainbow«
23 sensor?

24 A. Well, the emitters are placed on what we call an
25 emitter assembly, which we discussed this a little while

1 ago. Those are -- have been placed on a flex circuit, which
2 then in this case has the emitter assemblies as well as the
3 photodiode.

4 And in the picture, the expanded picture that we
5 have shown originally -- or not originally -- earlier of
6 that clip sensor, you could see that flex circuit, and then
7 the hierarchy will go higher and higher and higher until you
8 have the whole sensor.

9 MR. LATEEF: We're now going to go back on some
10 Masimo CBI information. Could we go back on the Masimo CBI?

11 (Whereupon, the hearing proceeded in confidential
12 session.)

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3 JUDGE BHATTACHARYYA: Let's move to the public
4 record.

5 CROSS-EXAMINATION

6 BY MR. SELWYN:

7 Q. Good afternoon, Mr. Diab.

8 A. Good afternoon.

9 Q. You are one of the cofounders of Masimo, correct?

10 A. Correct.

11 Q. And at Masimo you've been chief technology
12 officer, chief scientist, and fellow scientist, correct?

13 A. Correct.

14 Q. You're not aware of any evidence that Apple ever
15 copied the '127 patent, correct?

16 A. I have not looked at any evidence myself.

17 Q. You're not aware of a shred of evidence that
18 Apple copied the '127 patent, correct?

19 A. I said I did not look into that, so I cannot form
20 an opinion about it.

21 Q. You're a named inventor of the '127 patent,
22 correct?

23 A. Correct.

24 Q. But you're not here to suggest that Apple Watch
25 uses or practices the '127 patent, correct?

1 A. I have not looked at any piece that has to do
2 with the Apple Watch to make or form any opinion.

3 Q. So you have not compared the claims of the '127
4 patent on the one hand with any Apple product on the other,
5 correct?

6 A. No, I have not.

7 Q. And you're also not here to suggest that Masimo
8 practices or uses the '127 patent, correct?

9 A. I'm sorry. Could you repeat that question?

10 Q. Sure. You're not here to suggest that Masimo is
11 using or practicing the '127 patent, correct?

12 A. That is incorrect. We are using and practicing
13 the '127 patent in all of our rainbow« sensors.

14 Q. Well, sir, you have not compared the claims of
15 the '127 patent to any Masimo product; isn't that true?

16 A. I think I did. I think Masimo uses all of those
17 in the patent. Actually all the aspects that we described,
18 all the embodiments, nearly all of them that we described in
19 the patent uses them. So how could we not practicing the
20 patent?

21 Q. Mr. Diab, do you remember giving a deposition in
22 this case?

23 A. Yes.

24 Q. Can we have on the screen, please, Mr. Diab's
25 deposition at page 77, lines 9-14?

1 MR. LATEEF: Should we now open the cross binder
2 or materials that you gave him?

3 MR. SELWYN: Certainly. Feel free.

4 MR. LATEEF: Mr. Diab, there should be an
5 envelope near you with the materials.

6 Q. Mr. Diab, if you open the binder, tab 11, your
7 deposition, and I'd like to direct your attention to page
8 77, lines 9-14, which are on the screen.

9 We asked this question and did you give this
10 answer:

11 Question. Have you ever compared any Masimo
12 product against any claim in the '127 patent to see if that
13 product practices each element of the claim?

14 Answer. No, I did not.

15 Were you asked that question and did you give
16 that answer?

17 A. I think I did, but that's for the claims. I was
18 talking about the patent. The patent itself, the text of
19 the patent, which I helped wrote, and I know that we have
20 worked on all of those, do practice the patent. I don't
21 think I looked at the claim in details. But for the
22 patents, absolutely.

23 Q. Mr. Diab, you testified today about some
24 mechanical aspects of Masimo's products, like adhesives,
25 correct?

1 A. Yes.

2 Q. You're not familiar with the mechanical aspects
3 of the '127 patent, correct?

4 A. No. My work was more on to related to the
5 wavelength correction and light piping issue, the mechanical
6 aspect of it. I understand how the adhesive works. I
7 understand how the die attached work. I understand that
8 there is a cure that they use in the oven. I understood all
9 of that obviously because of my interaction, but I'm not an
10 expert or somebody who is, you know, really familiar with
11 the process itself.

12 Q. Sir, the first time that you read the '127 patent
13 since it issued was the week before your deposition in this
14 case, correct?

15 A. Since it was issued, yes.

16 Q. And you did not review any prior art patents or
17 publications before you applied for the '127 patent,
18 correct?

19 A. I myself did not review, no. I wrote a
20 disclosure, and we sent it to our lawyers.

21 Q. You're not aware of anyone at Masimo
22 investigating whether there were any products on the market
23 already that could estimate wavelength shifts before you
24 applied for the '127 patent; isn't that true?

25 A. I don't know if -- you're asking me about if

1 somebody at Masimo was aware 15, 17 years ago? I do not
2 remember that. I have no idea to remember it.

3 Q. But you do know that the concept of wavelength
4 shift was well-established before the '127 patent, correct?

5 A. Yes.

6 MR. SELWYN: Your Honor, I think at this point we
7 need to go on to the confidential Masimo business record.

8 JUDGE BHATTACHARYYA: Moving on to the Masimo
9 confidential record.

10 (Whereupon, the hearing proceeded in confidential
11 session.)

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3 JUDGE BHATTACHARYYA: We're moving back to the
4 public record.

5 REDIRECT EXAMINATION

6 BY MR. LATEEF:

7 Q. Mr. Diab, did you ever investigate whether a
8 board with one metallic layer could provide a thermal mass?

9 A. Yes.

10 MR. SELWYN: Objection, Your Honor.

11 JUDGE BHATTACHARYYA: I'm sorry. I didn't hear
12 the objection.

13 MR. SELWYN: It's beyond the scope.

14 JUDGE BHATTACHARYYA: Mr. Lateef, can you
15 respond?

16 MR. LATEEF: He asked the witness about the
17 number of layers that are in the Masimo sensor and about the
18 dimensions of that regarding a thermal mass, implying that a
19 smaller thermal mass would not provide the benefit of the
20 '127 patent. I'm merely responding to that.

21 JUDGE BHATTACHARYYA: Mr. Selwyn, anything
22 further?

23 MR. SELWYN: I asked no question to which that
24 question that was just posed would be relevant to.

25 JUDGE BHATTACHARYYA: I agree. The question is

1 outside the scope of the cross. So that portion of the
2 testimony is stricken.

3 BY MR. LATEEF:

4 Q. Mr. Diab, you mentioned test stations earlier.
5 Do you remember that?

6 A. Yes.

7 Q. Are there test stations that check the
8 characterization of the current Masimo sensors?

9 A. Yes. We have that on every single sensor. It's
10 tested before it's shipped. The -- and it's the same
11 technique that was used on the old version of the sensor and
12 the new version of the sensor. There is no sensor that
13 leaves Masimo production without being characterized, and
14 the characterization validates whether the equation is
15 working or not. If it doesn't, it gets thrown out.

16 So that is our validation of whether it's ceramic
17 or not. Every single sensor gets characterized and
18 validated that the wavelengths that comes out correspond to
19 the equation that we put inside the sensor.

20 MR. LATEEF: I have no further questions,
21 Your Honor.

22 MR. SELWYN: No questions, Your Honor.

23 JUDGE BHATTACHARYYA: Thank you. Mr. Diab, thank
24 you so much for being with us.

25 THE WITNESS: Thank you, Your Honor.

1 MS. SWAROOP: Your Honor, Complainants' next
2 witness will be Mr. Ammar Al-Ali, and Mr. Jensen will be
3 conducting that examination.

4 MR. MUELLER: Your Honor, Sarah Frazier will be
5 conducting the cross-examination.

6 JUDGE BHATTACHARYYA: Thank you.

7 MR. JENSEN: Good afternoon, Your Honor. This is
8 Steve Jensen.

9 Mr. Al-Ali, are you comfortable and do you have
10 your book?

11 THE WITNESS: Yes. Good afternoon.

12 MR. JENSEN: May we begin, Your Honor?

13 JUDGE BHATTACHARYYA: I'll swear in the witness
14 first before we proceed further.

15 Mr. Al-Ali, did I pronounce it right?

16 THE WITNESS: That's correct.

17 JUDGE BHATTACHARYYA: Welcome. Thank you for
18 coming. Do you understand you're under an obligation to
19 tell the truth here today?

20 THE WITNESS: I do.

21 AMMAR AL-ALI,
22 having been first duly sworn and/or affirmed
23 on his oath, was thereafter examined and testified as
24 follows:

25 JUDGE BHATTACHARYYA: Thank you.

1 DIRECT EXAMINATION

2 BY MR. JENSEN:

3 Q. Mr. Al-Ali, could you please state and spell your
4 name for the record?

5 A. Ammar Al-Ali, A-M-M-A-R, A-L hyphen A-L-I.

6 Q. And who is your current employer?

7 A. Masimo Corporation.

8 Q. When did you start at Masimo?

9 A. I started April 1995.

10 Q. Could you just briefly explain your job history
11 at Masimo since you started?

12 A. Yes. I started at Masimo in '95 as a software
13 engineer, and then moved from that to manage the engineering
14 department. I worked in the early days of '95 to about 2000
15 on the Masimo saturation algorithm.

16 And then after that our RAD system, which is a
17 medical device, and then after that I worked on the rainbow
18 system, and lately I've been working on wearable
19 technologies.

20 Q. And what are your current responsibilities at
21 Masimo?

22 A. Right now I oversee the technology development of
23 the company.

24 Q. Okay. And you mentioned wearables in your
25 previous answer. Did there come a point in time when from

1 your technology perspective the Masimo wrist pulse oximeter
2 project became more formal?

3 A. Yes. I started looking into measuring the wrist
4 somewhere around 2014, 2015. Did some feasibility work
5 there. And then started again in 2017 to 2018. And in 2019
6 we actually put a complete team to go after it, expanded the
7 team so we have enough support from all disciplines of the
8 engineering department.

9 Q. And did you file any patents back with that early
10 work that you did?

11 A. Yes. I did file a patent on 2015 based on that
12 initial work.

13 Q. And can you find in your book Complainants'
14 Exhibit 4? Or we'll also pull it up on the screen. And let
15 us know if you recognize that patent.

16 A. Yes, I do recognize that patent.

17 Q. And is this one of the patents that you were
18 referring to that stemmed from the work you mentioned in
19 2014 and 2015?

20 A. That's correct. This was from the 2015 time,
21 yes.

22 Q. And you're an inventor on this patent, right?

23 A. Yes, I am.

24 Q. What was your involvement in this patent?

25 A. I am the designer for the and the inventor for

1 the subject matter. I gave disclosure to the attorneys to
2 actually file the patent.

3 Q. Okay. And then you said that things started
4 from -- I think you said working more with a team happened a
5 little later.

6 What started happening then when you picked it
7 back up, I think you said?

8 A. Oh, in 2019 we put a complete team behind this
9 technology. We hired mechanical engineers, electronic
10 engineers, and software. So we actually started making the
11 sensor and trying to optimize its performance.

12 Q. And when did Masimo have its own wrist pulse
13 oximeter devices with sensing on the wrist?

14 A. This would be late 2019.

15 Q. And could you please on the -- it's on the stand
16 that's behind you -- or someone might have put it next to
17 you, please find Complainants' physical exhibit 22. It's
18 either there or it's on the cart.

19 A. Oh, it's on the cart.

20 Q. Number 22.

21 A. I found it.

22 Q. Okay. Do you recognize Complainants' Exhibit 22?

23 A. Yes. It's one of our early sensors.

24 Q. Can you show us just on your camera there, not on
25 the ELMO, but just on the camera what you're holding?

1 A. (Complying.)

2 Q. And do you recognize that sensor?

3 A. Yes, I do.

4 Q. And when was it made?

5 A. This sensor was made in October 2019.

6 Q. How can you tell when it was made?

7 A. I do remember that, but also it has the labels on
8 it.

9 Q. And maybe you could put it on the ELMO so that we
10 can see that, what you're looking at. There we go.

11 So you were looking -- you were mentioning some
12 labels. Are those the labels down there?

13 A. Yes, these are the labels, and 10-23-19, this is
14 when it was actually used for a Desat study.

15 Q. When you say "Desat study," what do you mean by
16 that?

17 A. This is a study that we do to evaluate the
18 accuracy of the product. We bring in volunteers and we
19 attach the sensor to their wrist and make them breathe a
20 different mixture of oxygen and nitrogen to change the SpO2
21 in their blood. So typically that study we take a person
22 from about 100 percent, which is normal, down to about 70
23 percent.

24 Q. On the back of the sensor head of that watch, is
25 there a label?

1 MR. JENSEN: Actually, Your Honor, I should have
2 said earlier we were on the confidential record as soon as I
3 started pulling up these samples. I would like to be on the
4 confidential CBI for Masimo at this point.

5 (Whereupon, the hearing proceeded in confidential
6 session.)

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1 C E R T I F I C A T E

2 TITLE: CERTAIN LIGHT-BASED PHYSIOLOGICAL MEASUREMENT DEVICES
3 AND COMPONENTS THEREOF

4 INVESTIGATION NO.: 337-TA-1276

5 HEARING DATE: June 6, 2022

6 LOCATION: Washington, D.C. - Remote

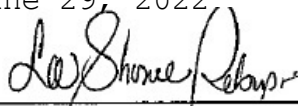
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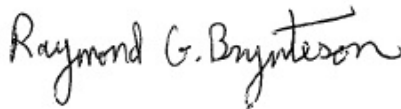
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UNITED STATES INTERNATIONAL TRADE COMMISSION

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In the Matter of

Investigation No.

CERTAIN LIGHT-BASED PHYSIOLOGICAL 337-TA-1276

MEASUREMENT DEVICES AND COMPONENTS

THEREOF

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OPEN SESSIONS

Pages: 283 through 596 (with excerpts)

Place: Washington, D.C.

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1 UNITED STATES INTERNATIONAL TRADE COMMISSION

2 Washington, D.C.

3 Before the Honorable Monica Bhattacharyya

4 Administrative Law Judge

5

6 -----x

7 In the Matter of Investigation No.

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9 CERTAIN LIGHT-BASED PHYSIOLOGICAL 337-TA-1276

10 MEASUREMENT DEVICES AND COMPONENTS

11 THEREOF

12 -----x

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15 EVIDENTIARY HEARING

16 Tuesday, June 7, 2022

17 Volume II

18

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20 The parties met via remote videoconferencing
21 pursuant to notice of the Administrative Law Judge at 9:30
22 a.m. Eastern.

23

24

25 Reported by: Linda S. Kinkade RDR CRR RMR RPR CSR

1 A P P E A R A N C E S:

2 [All parties appeared via remote videoconferencing and/or
3 telephonically.]

4

5 Counsel for Complainants Masimo Corporation and Cercacor
6 Laboratories, Inc.:

7 KNOBBE, MARTENS, OLSON & BEAR, LLP

8 2040 Main Street, Fourteenth Floor

9 Irvine, California 92614

10 (949) 760-0404

11 Stephen C. Jensen, Esq.

12 Joseph R. Re, Esq.

13 Sheila N. Swaroop, Esq.

14 Ted M. Cannon, Esq.

15 Kendall M. Loebbaka, Esq.

16 Douglas B. Wentzel, Esq.

17 Irfan Lateef, Esq.

18 Alan G. Laquer, Esq.

19

20

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Complainants Masimo Corporation and Cercacor

4 Laboratories, Inc.:

5 KNOBBE, MARTENS, OLSON & BEAR, LLP

6 1717 Pennsylvania Avenue, NW, Suite 900

7 Washington, DC 20006

8 (202) 640-6400

9 Jonathan E. Bachand, Esq.

10

11 KNOBBE, MARTENS, OLSON & BEAR, LLP

12 925 4th Avenue, Suite 2500

13 Seattle, Washington 98104

14 (206) 405-2000

15 Carol Pitzel Cruz, Esq.

16

17

18

19

20

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 1875 Pennsylvania Avenue, NW

6 Washington, DC 20006

7 (202) 663-6000

8 Michael D. Esch, Esq.

9 David L. Cavanaugh, Esq.

10

11 WILMER CUTLER PICKERING HALE AND DORR LLP

12 2600 El Camino Real, Suite 400

13 Palo Alto, California 94306

14 (650) 858-6000

15 Mark D. Selwyn, Esq.

16

17

18

19

20

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 60 State Street

6 Boston, Massachusetts 02109

7 (617) 526-6000

8 Joseph J. Mueller, Esq.

9 Richard Goldenberg, Esq.

10 Sarah R. Frazier, Esq.

11 Jonathan A. Cox, Esq.

12 Nina Garcia, Esq.

13 Cynthia D. Vreeland, Esq.

14

15

16 WILMER CUTLER PICKERING HALE AND DORR LLP

17 1225 17th Street, Suite 2600

18 Denver, Colorado 80202

19 (720) 598-3459

20 Ravi S. Deol, Esq.

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 350 South Grand Avenue, Suite 2400

6 Los Angeles, California 90071

7 (213) 443-5300

8 Derek Gosma, Esq.

9

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12 *** Index appears at end of transcript ***

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1 P R O C E E D I N G S

2 (In session at 9:30 a.m.)

3 JUDGE BHATTACHARYYA: Let's begin. We're on the
4 record. Let's start on the public record.

5 For today's activities, who is going to be the
6 designated attorney regarding CBI for each side?

7 MS. SWAROOP: I will be for Complainants,
8 Your Honor.

9 JUDGE BHATTACHARYYA: Thank you.

10 MR. MUELLER: Ms. Frazier has kindly agreed,
11 Your Honor, to do the same for us.

12 JUDGE BHATTACHARYYA: Okay. Wonderful. We have
13 some exhibits that I understand are ready or almost ready
14 for admission. I have a list entitled Table of Exhibits
15 Entered Into Evidence Without Sponsoring Witness. The PDF
16 is entitled -- is dated 6-6-2022.

17 Are there any objections to admission of any of
18 these exhibits?

19 MR. MUELLER: No, Your Honor. With respect to
20 the two tables of exhibits that the Complainants submitted,
21 one for the evidentiary hearing yesterday and one for the
22 evidence without a sponsoring witness, we have no objection
23 to the table for the evidence without a sponsoring witness.

24 For the admitted exhibits that were used
25 yesterday, we have no further objections and nothing to

1 raise at this time. I would just note, Your Honor, there
2 were a couple points where we made some standing objections,
3 for example, to post-complaint evidence, which Your Honor
4 has already ruled on, and I just wanted to make clear that
5 we're not abandoning our legal position on that issue. We
6 have no further objections for Your Honor to resolve at this
7 time.

8 JUDGE BHATTACHARYYA: All right. So starting
9 with the Table of Exhibits Entered Into Evidence Without a
10 Sponsoring Witness, I understand no objections, those
11 exhibits are admitted into evidence. Please send a copy of
12 that list to the court reporter.

13 (Whereupon, the exhibits as recited by counsel
14 and reflected in the attached index were submitted and
15 received in evidence.)

16 JUDGE BHATTACHARYYA: The second list I have is
17 Table of Admitted Exhibits With the Evidentiary Hearing on
18 June 6, 2022. And I understand there are no objections to
19 that list either; is that right, Mr. Mueller?

20 MR. MUELLER: No further objections, Your Honor,
21 nothing that we need to raise beyond what you've heard in
22 the past.

23 We have taken positions, again, the example I'd
24 use is on post-complaint evidence, but we understand
25 Your Honor's guidance and there's nothing further we would

1 ask Your Honor to do at this time.

2 JUDGE BHATTACHARYYA: Understood. Those exhibits
3 are admitted into evidence.

4 (Whereupon, the exhibits as recited by counsel
5 and reflected in the attached index were submitted and
6 received in evidence.)

7 JUDGE BHATTACHARYYA: Please send a copy to the
8 court reporter.

9 MS. SWAROOP: Your Honor, just so it's clear,
10 this table contains exhibits that are now part of the
11 evidentiary record. I just want to make sure there's no
12 ambiguity with regard to that. Mr. Mueller indicated some
13 standing objections, but I just want to make the record very
14 clear that there are no objections to these exhibits coming
15 in.

16 JUDGE BHATTACHARYYA: My understanding is they
17 are admitted. If Mr. Mueller wants to preserve his right to
18 potentially petition for review of that ruling, but under
19 the current rulings, those exhibits are admitted.

20 MR. MUELLER: That's correct, Your Honor. Thank
21 you.

22 JUDGE BHATTACHARYYA: Okay. I also have a list
23 6-7-2022, Complainants' Deposition Designations and Exhibits
24 to Move Into Evidence. Are those ready to be moved in at
25 this time?

1 MS. SWAROOP: Yes, Your Honor. We had prepared a
2 list. I believe Apple had raised one objection. I don't
3 know if Apple is maintaining that objection, but we have
4 prepared a list with the designations and the exhibits
5 accompanying those to move into evidence.

6 JUDGE BHATTACHARYYA: All right. Mr. Mueller,
7 are there objections to these designations and associated
8 exhibits?

9 MR. MUELLER: Your Honor, there's been 13 sets of
10 designations. For 12 of them we have no objections. We do
11 have objections to David Amor. If Your Honor would like to
12 hear those objections now, the bases for them, I'm happy to
13 do so. Ms. Frazier can provide the details.

14 JUDGE BHATTACHARYYA: Yes, let's do that now.

15 MS. SWAROOP: Your Honor, just so it's clear, we
16 had submitted written communications to Your Honor setting
17 forth our positions. We believe Apple provided an email to
18 Your Honor yesterday with regard to its position on
19 Mr. Amor, and we had provided our response this morning in
20 writing.

21 So that is in writing, if Your Honor would prefer
22 to review that, or if you'd like to have argument now, we
23 can do that.

24 JUDGE BHATTACHARYYA: I appreciate the parties
25 giving me a heads-up on their positions. I would like to

1 have the argument on the record.

2 MS. SWAROOP: I understand. Mr. Bachand will be
3 making that argument for Complainants.

4 MS. FRAZIER: Good morning, Your Honor.

5 JUDGE BHATTACHARYYA: Good morning.

6 MS. FRAZIER: As Mr. Mueller noted, we have
7 significantly narrowed. We do have objections outstanding
8 with respect to the designations and three exhibits
9 Complainants seek to introduce through David Amor.

10 Mr. Amor was the designee with respect to --
11 actually, Your Honor, if we could please go on the Apple
12 confidential record for this portion.

13 JUDGE BHATTACHARYYA: All right.

14 (Whereupon, the hearing proceeded in confidential
15 session.)

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3 JUDGE BHATTACHARYYA: And now we're moving on to
4 the Masimo confidential record.

5 (Whereupon, the hearing proceeded in confidential
6 session.)

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3 JUDGE BHATTACHARYYA: Moving back to the public
4 record.

5 CROSS-EXAMINATION

6 BY MS. FRAZIER:

7 Q. Now, Mr. Al-Ali, you've testified for about 60
8 minutes between yesterday and today, correct?

9 A. Yes.

10 Q. And Mr. Jensen didn't ask you any questions about
11 the '127 patent, correct?

12 A. I don't remember, no.

13 Q. You are an inventor on the '127 patent, sir?

14 A. I believe so.

15 Q. And the '127 patent was designed to measure
16 carboxyhemoglobin and methemoglobin, correct?

17 A. I believe so.

18 Q. The '127 patent does not have anything to do with
19 SpO2, right?

20 A. The patent itself, no.

21 Q. And you are unaware of Masimo ever using the
22 techniques described in the '127 patent for measuring SpO2,
23 right?

24 A. No, some of those techniques actually applied for
25 SpO2.

1 Q. But you don't have any product that uses the
2 techniques described and claimed in the '127 patent for
3 measuring SpO2, right?

4 A. Not on the market, yes, but we are working.

5 Q. Let's turn, sir, please, to your deposition. Do
6 you recall being deposed in this investigation?

7 A. Yes.

8 MR. JENSEN: Ammar, there should be an envelope
9 that has been unopened somewhere in the room with you there.

10 THE WITNESS: Yeah, I see it.

11 MR. JENSEN: And our deposition should be in
12 there.

13 THE WITNESS: Okay.

14 Q. Mr. Al-Ali, it will be at tab 1 of the binder,
15 and we will also put it up on the screen for you.

16 A. Yes, I see that.

17 Q. Okay. And, again, sir, you yourself don't have a
18 product, Masimo does not have a product out with the
19 techniques described and claimed in the '127 patent for
20 measuring SpO2, correct?

21 A. We don't have a product that we sell.

22 Q. Now you don't remember how the solution for the
23 '745 patent came to mind, correct?

24 A. When you say how it came to mind, like the moment
25 that I remember how I would go do that?

1 Q. Well, you don't remember how you came up with the
2 idea described in the '745 patent.

3 A. Of course, I mean, I remember thinking about the
4 problem and trying to find a solution.

5 Q. But you don't remember how the solution came to
6 your mind, right?

7 A. I'm not sure I understand that. I'm thinking
8 about a solution for a problem. So are you saying like my
9 thoughts, how I got there?

10 Q. So let's see what you said at your deposition,
11 sir. It's at tab 1 of your binder.

12 A. Mm-hmm.

13 Q. If we could put it up on the screen. Page 44,
14 beginning at line 16.

15 A. Yep.

16 Q. Do you see there:

17 Question. How did you come up with the idea
18 described in the '745 patent?

19 Answer. I don't remember how the idea came to my
20 mind, but it's a problem that we were facing and we tried to
21 find a solution. And this is like many years ago, so it's
22 not -- I don't remember how the solution came to my mind.

23 Were you asked that question and did you give
24 that answer?

25 A. Yeah. And this is what I just gave you seconds

1 ago.

2 Q. And, sir, you don't remember because it was many
3 years ago, correct?

4 A. Yeah, I don't remember how it came to my mind,
5 but I remember it's a problem we were going after.

6 Q. And fair to say you don't know one way or the
7 other why the '745 patent was not filed until March of 2020,
8 correct?

9 A. The '745 patent?

10 Q. Correct.

11 A. That -- I think that was filed in 2015.

12 Q. You think you had the original idea in 2015; is
13 that right?

14 A. I think it was filed in 2015.

15 Q. Well, let's bring it up. I believe it's Exhibit
16 4. This is the '745 patent, sir, correct?

17 A. Yes.

18 Q. And do you see on the left-hand column where it
19 says, filed, March 31st, 2020?

20 A. Yeah, I see that, but that's the continuation.
21 The original file, the disclosure, was done in 2015, I
22 believe.

23 Q. Correct. And you, sir, don't know one way or
24 another why the application for the '745 patent was not
25 filed until March of 2020, correct?

1 A. No, the application was filed in 2015. I know
2 that very well because right after that actually I had major
3 heart surgery, so I know exactly when it was filed because
4 it's in my mind.

5 Q. And that's the original provisional you're
6 talking about, correct?

7 A. That's the original, but it's in the same
8 disclosure.

9 Q. Now, sir, you consider shaping the light to be
10 the thing that was new about the '745 patent, correct?

11 A. Yes.

12 Q. And it changes from a first shape to a second
13 shape, correct?

14 A. Correct.

15 Q. And as the sole inventor of the '745 patent, you
16 do not know what the first shape of light emitted by the
17 LEDs is, correct?

18 A. So it's not important to know what the first
19 shape is. What's important is the final shape that we need.
20 So LEDs, as their nature, they come out with different
21 shapes, and usually the emission out of the LEDs comes out
22 almost like a cone with a hollow inside. So it is not
23 appropriate to what we're trying to do. So it doesn't
24 matter how it is shaped as it comes out of the emitter,
25 because we had a diffuser on top that actually uniforms the

1 light, and then it allows us to shape it any way we want
2 when it comes out. So what's important --

3 Q. Sir, if you could just stay with my question.

4 As the sole inventor of the '745 patent, you
5 don't know what the shape of light emitted by the LEDs is,
6 correct?

7 A. Yeah, but I'm trying to explain.

8 Q. Well, let's see what you said at your deposition,
9 sir. It's in tab 1 of your binder. We'll put it up on the
10 screen. Page 72, lines 5-14.

11 Question. In the '745 patent, what shape is the
12 first shape of light emitted by the LEDs?

13 And what shape is that?

14 Answer. I don't know what shape.

15 Were you asked that question and did you give
16 that answer?

17 A. That's correct. I don't care what the shape --
18 the first shape is. I care what comes out is important.

19 Q. And the '745 patent describes what comes out as
20 the second shape as a ring or a doughnut. That's what you
21 were showing Mr. Jensen?

22 A. That's one configuration of it, yes.

23 Q. And that's what you invented, right?

24 A. Reshaping the light, yes.

25 Q. Now I heard you mention prior art in your

1 discussion with Mr. Jensen. You personally did not
2 investigate whether any prior art to the '745 patent
3 describes shaping of light, correct?

4 A. I did not myself.

5 Q. And you have never compared the claims of the
6 '745 patent to any prior art, correct?

7 A. I'm not qualified to do that.

8 Q. Now, sir --

9 MS. FRAZIER: Your Honor, at this point we should
10 go on the Masimo confidential record, please.

11 (Whereupon, the hearing proceeded in confidential
12 session.)

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2 MS. SWAROOP: Your Honor, for our next witness,
3 Complainants call Bilal Muhsin. We're just getting him set
4 up in the witness room.

5 JUDGE BHATTACHARYYA: Okay.

6 MR. MUELLER: Your Honor, I'll be conducting this
7 cross-examination.

8 JUDGE BHATTACHARYYA: Thank you.

9 MR. MUELLER: Are we back on the public record,
10 Your Honor?

11 JUDGE BHATTACHARYYA: Yes, we are.

12 MR. MUELLER: Okay. Thank you, Your Honor.

13 MS. SWAROOP: Our witness is ready.

14 Good morning, Mr. Muhsin.

15 JUDGE BHATTACHARYYA: Good morning. Could you
16 help me pronounce your name again?

17 THE WITNESS: Bilal.

18 JUDGE BHATTACHARYYA: And the last name?

19 THE WITNESS: Muhsin.

20 JUDGE BHATTACHARYYA: Okay. Mr. Muhsin, thank
21 you for coming here today. Do you understand you're under
22 an obligation to tell the truth in your testimony?

23 THE WITNESS: I do.

24 BILAL MUHSIN,

25 having been first duly sworn and/or affirmed

1 on his oath, was thereafter examined and testified as
2 follows:

3 DIRECT EXAMINATION

4 BY MS. SWAROOP:

5 Q. Good morning, Mr. Muhsin.

6 A. Good morning.

7 Q. Could you please describe your current
8 employment?

9 A. I'm the Chief Operating Officer at Masimo.

10 Q. How long have you held that position?

11 A. Since 2019.

12 Q. What are your responsibilities as the Chief
13 Operating Officer at Masimo?

14 A. I oversee R&D, regulatory, quality, operations,
15 and commercial for Masimo, and clinical affairs as well.

16 Q. Mr. Muhsin, what is the Masimo Watch project?

17 A. It is a project that formally started in 2019.
18 It's about a design of a wrist sensor that's able to
19 calculate pulse oximetry, the SpO2 reading, and has other
20 functionalities that a watch would have.

21 Q. What is your role in the Masimo Watch project?

22 A. I'm no longer a hands-on engineer, but I do
23 oversee the entire R&D development, the operation side, and
24 the commercialization side of the product.

25 Q. You mentioned that the Masimo Watch project

1 formally started in 2019. What did you mean by that?

2 A. It started in 2019 because, formally I said,
3 which is a W1 project, we had many iterations of wrist
4 sensors that we worked on prior, between us and our sister
5 company Cercacor. So, technically, we had a lot of work
6 done prior to 2019 on the project, but that's when it
7 formally started for the W1.

8 MS. SWAROOP: And I'm going to be going into some
9 confidential material, so I would like to go on the CBI
10 record for Masimo.

11 JUDGE BHATTACHARYYA: Moving on to the Masimo
12 confidential record.

13 (Whereupon, the hearing proceeded in confidential
14 session.)

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3 JUDGE BHATTACHARYYA: All right. Let's move on
4 to the public record.

5 BY MS. SWAROOP:

6 Q. Mr. Muhsin -- do we need to --

7 Can I continue, Your Honor?

8 JUDGE BHATTACHARYYA: Yes, you may.

9 MS. SWAROOP: Okay.

10 BY MS. SWAROOP:

11 Q. So, Mr. Muhsin, we were discussing CX-789, page
12 39. Can you tell us what this is showing here?

13 A. This is the model that would sit in the bed at
14 Arab Health. We had kind of a mockup of a home setting, so
15 the model would sit in the bed. This is the watch on the
16 model's hand reading the SpO2 or the O2 calculation, the
17 oxygenation. That's the 99 percent up there, and the heart
18 rate, which is at 89 beats per minute, and then the step
19 counter and the time. So this is being demonstrated at Arab
20 Health on the model.

21 Q. Okay. Thank you, Mr. Muhsin.

22 I would like to ask you about Masimo's
23 manufacturing activities in the United States in connection
24 with the W1.

25 Does Masimo have a video made that illustrates

1 and shows the production of the Masimo W1 at its Irvine,
2 California facility?

3 A. Yes.

4 Q. Did you have any involvement in coordinating that
5 video?

6 A. I did walk the manufacturing floor and asked them
7 to focus on certain parts of the line in terms of that
8 video, yes.

9 Q. Okay. Do you know when that video was made?

10 A. Last year, end of last year.

11 MS. SWAROOP: I'm going to show the video and I
12 would like to go on the Masimo CBI record for that.

13 (Whereupon, the hearing proceeded in confidential
14 session.)

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3 MR. MUELLER: Thank you, Your Honor. May I
4 proceed?

5 JUDGE BHATTACHARYYA: Yes.

6 CROSS-EXAMINATION

7 BY MR. MUELLER:

8 Q. Good afternoon, or good morning I should say,
9 Mr. Muhsin. Nice to see you.

10 A. Good morning.

11 Q. If we could please pull up CPX-0146.

12 A. I have a box here. Am I supposed to open it?

13 Q. If you could, that would be great actually. I'm
14 not going to refer to it quite yet, but if you could open it
15 up to have it handy, that would be terrific.

16 MS. SWAROOP: Are we on the public record right
17 now?

18 JUDGE BHATTACHARYYA: Yes, we're on the public
19 record.

20 MS. SWAROOP: Your Honor, our position is that
21 the image of the W1 is fine for the public record, but any
22 details with regard to its features and its operation we do
23 consider to be Masimo CBI.

24 MR. MUELLER: Well, Your Honor, I think it would
25 depend on the question of what's CBI and what's not. I

1 think some of the basic features and functionality should
2 not be CBI, if that's what they are relying on is the
3 domestic industry product and they are taking the position
4 it's been released.

5 MS. SWAROOP: That's fine. I would just note,
6 with regard to the release, again, as we've heard,
7 individuals who access the watch do have to agree to certain
8 contractual restrictions, including a restriction that they
9 do not copy any features of the watch, and so that is our
10 concern here.

11 JUDGE BHATTACHARYYA: Ms. Swaroop, let's take
12 this on a case-by-case basis. If Mr. Mueller asks a
13 question that you believe is seeking confidential
14 information, then please speak up and we'll move onto the
15 Masimo record at that time.

16 MS. SWAROOP: Thank you, Your Honor. I'll do
17 that.

18 BY MR. MUELLER:

19 Q. Mr. Muhsin, let me ask you a few questions about
20 what we're looking at here.

21 This is an image of a physical device that you
22 say is the Masimo W1 watch, correct?

23 A. Yes.

24 Q. And if we pull up CPX-0155AC, this is another
25 image of the Masimo W1 device, correct, sir?

1 A. Yes.

2 Q. And if we pull up CPX-156AC, this is another
3 image of the Masimo W1 watch, correct?

4 A. Yes.

5 Q. And this is the watch that you've stated on the
6 public record is being manufactured in Irvine, California,
7 correct?

8 A. Yes, in our Laguna Canyon Road facility.

9 Q. Now, you have testified that this watch is
10 currently in a phase called the limited market release,
11 correct?

12 A. Yes.

13 Q. And that phase began after the premarket release
14 phase or PMR, correct?

15 A. Well, they sometimes overlap, but, yes.

16 Q. Now just to be clear, before you answer the
17 question I'm about to ask you, I'm not asking you for any
18 detail in terms of pricing or contract materials or any
19 confidential information in my next question.

20 The PMR phase only involved one customer,
21 correct?

22 A. Correct.

23 Q. The Prince Sultan Cardiac Center, correct?

24 A. Yes.

25 Q. And the sale for that premarket release phase was

1 made at the end of 2021, correct?

2 A. Yes.

3 Q. You showed Her Honor a Purchase and Sales
4 Agreement dated December 16th, 2021. Again, I don't want
5 you to get into any details. It was dated December 16th,
6 2021, right?

7 A. Yes.

8 Q. Now the devices were not actually shipped on that
9 date, right?

10 A. They were shipped soon after.

11 Q. They were shipped at some point in 2022, correct?

12 A. No, I believe we shipped in December.

13 Q. You did not ship them to the Cardiac Center in
14 December, did you, sir?

15 A. We shipped them to the distributor. It went to
16 Saudi Arabia. I don't know when it got to the Cardiac
17 Center. If it got there in December or early January, I'm
18 not sure.

19 Q. Well, sir, the Cardiac Center did not have use of
20 those devices even as of your deposition in February; isn't
21 that true?

22 A. Use is a little bit different. It doesn't mean
23 they did not receive them.

24 Q. Well, they didn't have them in their hands to be
25 able to use until some point after your deposition in

1 February, correct?

2 A. No. No, they had them in their hands, not
3 necessarily using them, I believe, at that time. That's
4 what I recall.

5 Q. Well, let me take you to your deposition.

6 A. Yes.

7 Q. If you look in your binder, sir, the
8 Cross-Examination Binder, it should be tab 1.

9 A. I'm sorry?

10 Q. It should be tab 1 in your binder. Let me know
11 when you have tab 1.

12 A. Yes.

13 Q. Sir, if you could please turn to page 70 --

14 A. May I grab my glasses real quick, do you mind?

15 Q. Take your time.

16 A. I have them.

17 MR. MUELLER: Ms. Swaroop, it might be you.
18 We're hearing echoes from that room.

19 MS. SWAROOP: Well, Mr. Mueller, I was hearing
20 some echoes from you as well so...

21 MR. MUELLER: I'll try to go slowly here and see
22 if we can get it sorted out.

23 Q. Mr. Muhsin, do you have your glasses?

24 A. I do. Thank you.

25 Q. If you can please turn to your deposition at page

1 70, lines 9-11. In context, your deposition was taken in
2 February, correct, sir?

3 A. Yes, the second one was in February. I had an
4 earlier one as well.

5 Q. And if we look at lines 9-11.

6 Question. Has the Prince Sultan Cardiac Center
7 used the Masimo Watch with any patients yet?

8 Answer. No.

9 Were you asked that question and did you give
10 that answer?

11 A. That's correct.

12 MS. SWAROOP: I apologize, Mr. Muhsin. I'd like
13 to object, because there is a further follow-up question
14 that Mr. Mueller is not showing the witness.

15 JUDGE BHATTACHARYYA: Okay.

16 MR. MUELLER: If Ms. Swaroop wants to take it up
17 on redirect --

18 JUDGE BHATTACHARYYA: Ms. Swaroop, you can
19 provide any additional context during redirect.

20 MS. SWAROOP: Thank you, Your Honor.

21 JUDGE BHATTACHARYYA: I am hearing a considerable
22 amount of echo.

23 MR. MUELLER: Your Honor, perhaps we can take the
24 morning break and we can try to sort it out. Would that
25 make sense?

1 JUDGE BHATTACHARYYA: Yes, that sounds like a
2 great idea. Let's take the morning break. We're on recess
3 for 15 minutes.

4 (Whereupon, the proceedings recessed at 11:10
5 a.m.)

6 (In session at 11:25 a.m.)

7 JUDGE BHATTACHARYYA: We're back on the record.
8 We're on the public record.

9 MR. MUELLER: May I proceed, Your Honor?

10 JUDGE BHATTACHARYYA: Yes, please.

11 BY MR. MUELLER:

12 Q. Mr. Muhsin, let me put on the screen the three
13 images we looked at. Those are CPX-146, CPX-155, CPX-156.
14 And they each have the suffix AC.

15 Now these are the three images of the Masimo W1
16 watch, correct?

17 A. Yes.

18 Q. Now you would agree, sir, from an industrial
19 design perspective, this device looks a lot like the Apple
20 Watch, right?

21 A. No, I wouldn't agree.

22 Q. You wouldn't agree.

23 A. No.

24 Q. Is that right?

25 A. I mean, from my perspective, maybe I know it a

1 little bit too intimately, but I would not agree.

2 Q. You would not agree. Now you understand, sir,
3 that the Masimo engineering team actually gave consideration
4 to the Apple Watch while designing what we're looking at
5 right here, correct?

6 A. I don't know.

7 Q. You don't know one way or the other?

8 A. No. I wasn't part of the process.

9 Q. Well, you testified on direct that you are the
10 head of the operations team, correct?

11 A. The head of the operations, yes, head of
12 operations team, correct.

13 Q. Research and development reports to you, right?

14 A. Yes, they do.

15 Q. And, in fact, you testified on direct that they
16 reported to you regularly about progress on the Masimo W1
17 watch, correct?

18 A. That is correct.

19 Q. A project that, according to you, began in 2019,
20 right?

21 A. Yes.

22 Q. Continues through today, correct?

23 A. Correct.

24 Q. And you don't know one way or the other if the
25 engineering team gave consideration to the Apple Watch while

1 designing the Masimo Watch; is that right?

2 A. That is correct.

3 Q. Now you will agree with me that the Apple Watch
4 was released, the original model, was released years before
5 the work even began in 2019 on the W1, credit?

6 A. So I explained this, I think, in the beginning.
7 Our work also began a lot earlier, but, yes, there was a
8 version of the Apple Watch that was released before the
9 release of the W1.

10 Q. In fact, multiple versions. The original version
11 was 2015, that's the Apple Watch, correct?

12 A. Yes.

13 Q. And there were a series of models released each
14 year thereafter, correct?

15 A. Yes.

16 Q. Now, the Masimo W1 watch has followed a research
17 and development schedule at a high level that is similar to
18 other Masimo projects, correct?

19 A. In some ways, yes, in some ways, no, but, yes.

20 Q. Your normal process involves premarket release,
21 correct?

22 A. Yes.

23 Q. Limited market release, right?

24 A. Yes.

25 Q. And then, finally, release to the open commercial

1 marketplace, correct?

2 A. Final market release.

3 Q. And that's called final market release, right,
4 sir?

5 A. Yes.

6 Q. And you followed that normal process with respect
7 to the W1 watch project, correct?

8 A. Yes.

9 Q. And you followed that normal process in the years
10 2019 to today, correct?

11 A. For the W1 again specifically?

12 Q. That's right, the W1.

13 A. Yes, we did.

14 Q. Is that right, sir?

15 A. Yes.

16 Q. Now the PMR or premarket release phase you
17 testified is now complete, correct?

18 A. Yes.

19 Q. It consisted of sales to one customer, right?

20 A. Correct.

21 Q. And that's the Cardiac Center in Saudi Arabia,
22 correct?

23 A. Yes. That wasn't the only use. That was the
24 only sale.

25 Q. And they provided some feedback; is that right,

1 sir?

2 A. Yes.

3 Q. And you've now moved, you've testified, to the
4 limited market release, correct?

5 A. Yes.

6 Q. This involves the use of non-disclosure
7 agreements and certain terms that folks who want to acquire
8 these devices have to agree to before they are given them,
9 right?

10 A. Correct.

11 Q. And one of the things that you're seeking is
12 further feedback, correct?

13 A. If there is feedback, yes, but really the
14 stability of the manufacturing process, meaning when we go
15 to high volume, can we make -- can we keep it consistent
16 throughout. That's the main purpose right now of the
17 limited market release.

18 Q. Well, sir, you would agree with me that research
19 and development continues on the W1 even as of today,
20 correct?

21 A. It's on the operational side now, so it's no
22 longer with the engineers on the development side. It has
23 now moved on to the manufacturing side, and we're in the
24 manufacturing stability process of the product.

25 Q. Sir, are you testifying that no engineering work

1 is occurring on the software or hardware of the W1?

2 A. Software continues to always be improved,
3 correct.

4 Q. Right. So the truth is, there is software
5 development ongoing even as of today, correct?

6 A. Software will always be ongoing, so it never
7 stops. Whether it's through these phases or after release,
8 just like our phone or the Apple Watch, they continuously
9 give upgrades and every year, every six months, you'll
10 receive an upgrade, and that will improve the product.

11 Q. Well, sir, you don't yet have the final software
12 for the final market release of the W1, correct?

13 A. At any point when manufacturing stability is
14 complete, we have what we call our minimum set requirements
15 for the software. So we can release with any -- or it can
16 be pushed out with the current version of software.

17 Q. Right, but you're not at the point of market
18 release stage, right?

19 A. That's because of the manufacturing stability,
20 making sure the manufacturing stability is there, not
21 because of anything else.

22 Q. And as of today, you are not in the manufacturing
23 for the final market release phase, correct?

24 A. We are. We are in the manufacturing process of
25 the -- for the limited market release, and we're producing

1 watches right now that at any point can be part of the final
2 market.

3 So just because we have them on the shelf, once
4 we say we're ready to go, those same watches that we built
5 through those same manufacturing processes can be used for
6 final market release.

7 Q. Let's put it this way. No customer anywhere in
8 the world can walk into a store and buy a Masimo Watch today
9 being correct?

10 A. So today you can buy it on -- through -- you can
11 sign up for the limited market release and through the
12 e-commerce we will send you one today, but it's not open to
13 market.

14 Q. And if you could just stay with my question,
15 please, sir.

16 There is no ability for a consumer to buy the
17 Masimo Watch in any store anywhere in the world, correct?

18 A. So there's virtual stores. So today you can sign
19 up for the limited market release and you can gain one
20 through that, but it's not available in a store, no.

21 Q. It's not available in a store, correct, sir?

22 A. That is correct.

23 Q. Okay. Now you, Masimo, I should say, and
24 Cercacor filed an amended complaint last July in 2021,
25 correct?

1 A. Yes.

2 Q. And the physical devices that we looked at images
3 of just a little while ago did not exist on the date that
4 complaint was filed, correct?

5 A. I testified that the physical that was shown to
6 me in the presentation was there, and I walked you through
7 it, I think, in my deposition. It was on the table when I
8 walked you through the version that was there.

9 Q. Well, sir, I want to be very careful here. I'm
10 distinguishing between earlier prototypes, and we may come
11 back to those, including on the confidential record.

12 On the public record for right now I'm focused on
13 the Masimo W1 watch that is in this limited market release?

14 Do you have that device in mind, sir?

15 A. Yes.

16 Q. And we just looked at those three images. If we
17 can pull them up again.

18 What we are looking at right here did not exist
19 in July of 2021, correct?

20 A. Correct. These specific ones did not, but
21 versions of the Masimo Watch did.

22 Q. Sir, you have to stay with my question. These
23 particular watches did not exist in July of 2021, correct?

24 A. Correct.

25 Q. And, in fact, these particular watches in this

1 industrial design were not manufactured until December of
2 2021, correct?

3 A. November, December time frame.

4 Q. Now we can take those images down.

5 The complaint actually included a declaration
6 from you; is that right, sir?

7 A. Yes, it did.

8 Q. And because we're on the public record I'm not
9 going to pull up the actual content of the declaration, but
10 that declaration included some computer-assisted design
11 drawings, right, sir?

12 A. It included some drawings, yes, CAD drawings.

13 Q. And those are called CAD drawings,
14 computer-assisted design, correct?

15 A. Yes.

16 Q. And you don't know when those were created,
17 right?

18 A. Meaning?

19 Q. You don't know when the CAD drawings were
20 created, correct?

21 A. Prior to me submitting that, yes, they were. I
22 mean, they were created prior to my submission, yes.

23 Q. But you don't know exactly when.

24 A. No.

25 Q. And those CAD drawings did not correspond to an

1 actual physical device that existed at that time, correct?

2 A. A design did correspond to a physical.

3 Q. Sir, you did not put in in your complaint a
4 photograph of an actual physical device in existence at that
5 time, did you.

6 A. That is correct. I did not put in a photograph.

7 Q. Now if a device actually existed at that time
8 that matched the CAD drawing, nothing would have stopped you
9 from taking a photograph of it, right?

10 A. I testified to this in my deposition that I wore
11 that same device on my wrist prior to me putting that
12 declaration together with that same design.

13 Q. And, sir, if you wore it on your wrist, surely
14 someone could have taken a photograph of it and attached it
15 to the complaint, correct?

16 A. It wasn't -- it wasn't -- I didn't make the call
17 whether it was a photograph or something else.

18 Q. Well, whoever made the call, what was attached to
19 the complaint was not what you are testifying to now; it was
20 a computer-assisted design drawing, correct?

21 A. In the complaint it was. And when we walked
22 through the samples during my deposition, I walked you
23 through --

24 Q. Sir, please, just stay with my question.

25 Ms. Swaroop will have a chance to ask you questions later

1 and you can expand on whatever you like.

2 But my question was simply, you attached
3 computer-assisted design drawings only to the complaint,
4 correct, sir?

5 A. No, there were also photographs, but for that
6 portion, yes.

7 Q. The photographs you're referring to were a
8 photograph of a strap, an actual physical strap.

9 A. I believe so, yes.

10 Q. Okay. There was no photograph of an actual watch
11 device, a full watch device, attached to the complaint,
12 correct?

13 A. Correct.

14 Q. Now, in fact, you weren't aware as of your
15 December deposition of a Masimo Watch that existed on the
16 date of the complaint that matched the description of the
17 Masimo Watch in your declaration attached to the complaint,
18 correct?

19 A. No. I could tell you which vintage and which
20 ones based on what was displayed at the table, but I
21 couldn't pick if it was the exact same one or not.

22 Q. Well, let's pull up your deposition. This is
23 your first deposition from December at page 127, line 22, to
24 page 128, line 5.

25 Take your time, sir. I believe it's tab 1 in

1 that binder, the Cross-Examination Binder.

2 MS. SWAROOP: Apologize. Are we in the December
3 deposition or the February deposition?

4 MR. MUELLER: December, which is tab 1 in the
5 cross binder.

6 MS. SWAROOP: Thank you.

7 Q. Are you there, sir?

8 A. Yes.

9 Q. Okay. So we can put this up on the screen. This
10 is page 127, line 22, to 128, line 5.

11 Question. Maybe you do, but do you have either
12 on your person today sitting here right now or at your
13 office or at your home, do you have in your possession
14 somewhere a Masimo Watch that existed on the date of the
15 complaint that matches the description on pages 1 through 7?

16 Answer. I do not.

17 Question. You do not?

18 Answer. Correct.

19 Were you asked those questions and did you give
20 those answers, sir?

21 A. Yes, but I remember, if we go up and down
22 throughout this question and answer, you were asking for the
23 specific watch when we were doing that, and I was telling
24 you I don't have a specific watch, and I did walk you
25 through a series of watches on the table. There was

1 probably over 50 of them. And I did point out at which
2 point I believed the complaint was filed and which watches
3 were produced at that time.

4 Q. Sir, were you asked those questions and did you
5 give those answers?

6 A. Yeah. Let me just look through here again.

7 Q. We're going to keep going, sir. You can come
8 back to this with Ms. Swaroop, if you would like.

9 A. You asked me if I had it in my possession.

10 Q. Sir, you have to stay with my question.

11 A. I understand, but I had it in my possession, not
12 whether it existed.

13 Q. I understand, but you have to stay with my
14 questions, and Ms. Swaroop will have a chance to do redirect
15 with you after I'm done.

16 You're also unaware of any documents that showed
17 the exact state of the Masimo Watch project as of July 2021,
18 correct?

19 A. Any what? I'm sorry.

20 Q. You are unaware of any documents, you're not sure
21 whether they exist, documents that showed the exact state of
22 the Masimo Watch project as of July 2021, correct?

23 A. Yeah. When you say "the exact state," that's, I
24 think, what I answered to.

25 Q. Let's take a look at your deposition. This is

1 page 37, lines 12-15.

2 A. 37?

3 Q. Page 37, sir.

4 Question. Are there any documents that show the
5 exact state of the Masimo Watch project as of July 2021?

6 Answer. I'm not sure.

7 Were you asked that question and did you give
8 that answer?

9 A. I'm sorry. That's not -- I don't have that in
10 front of me. I see on line 12 of the first deposition, it
11 says this is the first time --

12 Q. I apologize, sir. It was my mistake there. This
13 is tab 2. This is actually your February deposition. I
14 apologize for the confusion. If you go to tab 2 in your
15 binder --

16 MS. SWAROOP: Your Honor, I'll note that the clip
17 was cut off here. His complete answer is not being shown.

18 Q. We can scroll down. That's fine.

19 A. Page 37; is that correct?

20 Q. That's right, page 37, lines 12-15.

21 A. Okay.

22 Q. Question. Are there any documents that show the
23 exact state of the Masimo Watch project as of July 2021?

24 Answer. I'm not sure. I'm sure there's
25 engineering documents.

1 Were you asked that question and did you give
2 those answers -- that answer?

3 A. That is correct.

4 Q. And you did not identify any specific documents
5 at that time, correct?

6 A. Not my job to have the specific documents for my
7 engineering team, but there are specific documents that are
8 generated by the engineering team.

9 Q. Now, sir, you didn't go back and check the
10 inventory that existed on the date the complaint was filed,
11 correct?

12 A. Inventory of what?

13 Q. Inventory of the Masimo W1 watch. Correct?

14 A. I'm sorry. I wasn't asked to check the
15 inventory.

16 Q. Sir, you did not check the inventory that existed
17 on the date the complaint was filed, correct?

18 A. Yeah, I don't think I checked the inventory at
19 that date, no.

20 Q. You did not attempt to investigate the date for
21 any particular physical product like the ones on the table
22 at your deposition, you did not investigate the date for any
23 particular product, correct?

24 A. So there was 50 samples of products that you were
25 showing me, and I recall which one happened on which date.

1 In my role that's too specific for what I do.

2 Q. In fact, sir, you didn't attempt to investigate
3 the date for any of them, correct?

4 A. Correct, for those samples, you're right.

5 Q. Now you're aware that Masimo first provided a
6 Masimo Watch to Apple during your December deposition,
7 correct?

8 A. Correct.

9 Q. But that particular device could not turn on,
10 right?

11 A. I don't know.

12 Q. Well, we tried to turn it on at the deposition
13 and it didn't turn on; isn't that right?

14 A. That is correct. We were going through whether
15 it was charged or not, and then later my lawyer said that
16 maybe it didn't have software on it at that time. I'm not
17 sure.

18 Q. Now the limited market release phase that the
19 Masimo Watch is now in, you provided no details during your
20 direct testimony about customers who have purchased during
21 the limited market release phase, correct?

22 A. I'm sorry. Can you repeat the question?

23 Q. Sure. With Ms. Swaroop you did not provide any
24 information about the customers that have purchased in that
25 phase, correct?

1 A. Yeah, she didn't ask me about it.

2 Q. And no information about the number of sales,
3 correct?

4 A. She did not ask me.

5 MR. MUELLER: At this point, Your Honor, I am
6 going to go on the Masimo confidential business record, if I
7 could.

8 (Whereupon, the hearing proceeded in confidential
9 session.)

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1 O P E N S E S S I O N

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3 MS. SWAROOP: Are we on the public record now?

4 JUDGE BHATTACHARYYA: Yes, we are.

5 MS. SWAROOP: Thank you, Your Honor.

6 Mr. Scruggs, do you have a binder with you there
7 in the room?

8 THE WITNESS: Yes, I have a binder.

9 MS. SWAROOP: We are ready to proceed. Before we
10 begin, you're a little soft-spoken, so I would just ask that
11 you try and speak as close to the mic as you can.

12 THE WITNESS: Sounds good.

13 JUDGE BHATTACHARYYA: Welcome, Mr. Scruggs. Do
14 you understand that you are under an obligation to tell the
15 truth here today?

16 THE WITNESS: Yes, I do.

17 STEPHEN SCRUGGS,

18 having been first duly sworn and/or affirmed
19 on his oath, was thereafter examined and testified as
20 follows:

21 JUDGE BHATTACHARYYA: You may proceed, counsel.

22 DIRECT EXAMINATION

23 BY MS. SWAROOP:

24 Q. Good morning, Mr. Scruggs. Could you please
25 state and spell your last name for the record?

1 A. My name is Stephen Scruggs, and my last name is
2 spelled S-C-R-U-G-G-S.

3 Q. Where do you work?

4 A. I work at Masimo Corporation.

5 Q. How long have you worked there?

6 A. I've worked there for almost ten years now. My
7 ten-year anniversary will be in July.

8 Q. What is your current position at Masimo?

9 A. I'm the Director of Sensor Design.

10 Q. How long have you had that position?

11 A. I have had that position for a little over a year
12 now.

13 MS. SWAROOP: I am going to go on the Masimo CBI
14 record for essentially all of Mr. Scruggs' testimony, so I
15 would like to designate the record accordingly.

16 JUDGE BHATTACHARYYA: Moving to the Masimo
17 confidential record.

18 (Whereupon, the hearing proceeded in confidential
19 session.)

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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: Moving back to the public
4 record.

5 CROSS-EXAMINATION

6 BY MR. MUELLER:

7 Q. Good afternoon, Mr. Scruggs. Nice to meet you.
8 My name is Joe Mueller. I'd like to ask you a few
9 questions, if I could.

10 A. Yes, please.

11 MS. SWAROOP: Mr. Mueller, before we begin, we do
12 have the sealed box. Would you like Mr. Scruggs to open
13 that?

14 Q. Yes, please, if you could, sir.

15 MS. SWAROOP: We'll do the same here.

16 A. All right. I have two binders.

17 Q. Thank you. Mr. Scruggs, you said you first
18 started working on the Masimo Watch project in 2019,
19 correct?

20 A. Yes, that's correct.

21 Q. And by that point there were several years worth
22 of Apple watch models on the market, right, sir?

23 A. I'm not familiar with when the Apple Watches were
24 put on the market.

25 Q. Well, you know they were put on the market before

1 2019, correct?

2 A. I -- yes, I knew that.

3 Q. And, in fact, sir, you and the engineering team
4 that worked on the Masimo Watch considered the Apple Watch
5 inspect designing the Masimo Watch, correct?

6 A. Yes, that's correct.

7 Q. Now at your deposition you were unable to answer
8 questions because of instructions from your lawyers, and I
9 want to just confirm that you were not able to answer
10 certain questions for those reasons.

11 You were not able to answer the question about
12 whether Masimo's counsel in this investigation contributed
13 to any of the ideas in the design of the Masimo Watch,
14 correct?

15 A. Are you reading from my transcript?

16 Q. I actually am. You are not able to answer any
17 question -- you were not able to answer the question whether
18 Masimo's counsel in this investigation contributed ideas to
19 the design of the Apple Watch, correct?

20 MS. SWAROOP: Mr. Mueller, in view of the judge's
21 ruling, we're not maintaining that instruction, and
22 Mr. Scruggs can answer.

23 MR. MUELLER: Your Honor, I certainly object to
24 disclosure of what -- if they are now going to permit him to
25 answer a question they instructed him not to answer in fact

1 discovery, I object. I was just trying to make clear that
2 he was not able to answer that question because of a
3 privilege instruction at his deposition. He certainly
4 shouldn't be now offering an answer he didn't offer then.

5 JUDGE BHATTACHARYYA: Are you objecting to the
6 question? I'm not quite sure what you're asking.

7 MS. SWAROOP: Yes, Your Honor.

8 JUDGE BHATTACHARYYA: It was an improper
9 question?

10 MS. SWAROOP: Well, there was an instruction not
11 to answer on grounds of privilege with regard to the
12 evidence that came out at Mr. Scruggs' deposition.
13 Your Honor made a ruling on that.

14 I had instructed Mr. Scruggs not to answer at his
15 deposition on the basis of that privilege issue with regard
16 to that particular testing.

17 Your Honor has ruled that there's no privilege
18 with respect to that. So if they are going to ask him that
19 question, in view of Your Honor's ruling, we're not
20 maintaining that instruction on privilege.

21 MR. MUELLER: Well, Your Honor, if I might
22 respond.

23 MS. SWAROOP: I'm not objecting to the question.
24 I'm just pointing out that he can answer the question.

25 MR. MUELLER: If I might respond.

1 JUDGE BHATTACHARYYA: Mr. Mueller, I don't think
2 there's a problem with your question, if you want to ask it.
3 The objection is overruled to the extent the objection is to
4 the question Mr. Mueller asked.

5 MR. MUELLER: To be clear, Your Honor, I'm not
6 going to ask the question if he is now going to offer
7 answers that he didn't offer at his deposition.

8 The motion before Your Honor was to claw back
9 testimony, lots and lots and lots of testimony, that he gave
10 at his deposition, much of which he offered answers to
11 questions that we put to him at his deposition. That is
12 not -- not what I'm asking him about now.

13 I am asking him a question that he was unable to
14 answer because of a privilege instruction. And it's too
15 late to waive the privilege now to provide us with
16 information that was not provided during discovery.

17 JUDGE BHATTACHARYYA: Okay. You are free to ask
18 him if he was unable at his deposition to answer a question
19 because of a privilege instruction.

20 MR. MUELLER: That's all I want to do,
21 Your Honor.

22 JUDGE BHATTACHARYYA: Okay.

23 Q. Mr. Scruggs, at your deposition you were unable
24 to answer the following question because of an instruction
25 from counsel, and the question was:

1 Did Masimo's counsel in this investigation
2 contribute to any of the ideas in the design of the Masimo
3 Watch?

4 You were unable to answer that question at your
5 deposition, correct, sir?

6 A. If you're referencing my transcript, could I
7 follow along in my binder?

8 Q. You certainly can, sir. It's tab 1 in your
9 binder.

10 A. Okay.

11 Q. It's page 148, sir, starting at line 4,
12 continuing to line 9.

13 MS. SWAROOP: Your Honor, the basis for my
14 comment was that --

15 MR. MUELLER: I apologize. It's tab 2.

16 THE WITNESS: Tab 2?

17 MS. SWAROOP: Mr. Mueller is attempting to draw
18 an adverse inference from the instruction. I want to make
19 it clear that no counsel in this investigation was involved
20 in the design and development. So I just would like the
21 record to be clear on that.

22 A. I'm on tab 2, page 148. Could you please repeat
23 the line number?

24 Q. Yes, I can. Lines 4-9. And we can put it up on
25 the screen.

1 Question. Did Masimo's counsel in this
2 investigation contribute to any of the ideas in the design
3 of the Masimo Watch?

4 Ms. Swaroop: I'm going to instruct the witness
5 not to answer.

6 The Witness: I'm not able to answer.

7 Were you asked that question and did you give
8 that answer?

9 A. Yes, I asked that question and I gave that
10 answer.

11 Q. And the same was true with respect to the
12 question: Did Masimo take any steps to ensure its
13 litigation counsel in this investigation would not
14 contribute ideas or influence the design of the Masimo
15 Watch?

16 At your deposition you were not able to answer
17 for the very same reason, correct?

18 A. Yes, that's correct.

19 Q. Thank you, sir. You can put that aside.

20 A. Okay.

21 Q. Now you spent, by my count, over an hour of
22 direct testimony going through various materials and images
23 of products, correct, sir?

24 A. Yes, that's correct.

25 Q. And you understand, Mr. Scruggs, none of those

1 materials, none of those images, were attached to the
2 amended complaint in this case last July, right?

3 A. I'm not aware of what was attached.

4 Q. To the best of your knowledge, sir, none of the
5 devices referred to in your testimony today were referred to
6 in the amended complaint last July, correct?

7 A. I don't know what was attached to the amended
8 complaint. I know that those devices have been around. I
9 know the devices. I don't know what was attached to the
10 complaint.

11 Q. In fact, sir, according to your own testimony
12 today, not all of them were around. Some of them were
13 created after last July, correct?

14 A. Yes.

15 Q. Okay. Now you said that you demonstrated these
16 devices to the technical experts in this case, including
17 Apple's experts and also Dr. Madisetti. Do I have that
18 right, sir?

19 A. Yes, that's correct.

20 Q. Let me show you a demonstrative, RDX-11.2.

21 Before I show it to you, before I put it up, for
22 my next couple of questions, I'm not going to show you any
23 images of these products. I'm not asking you about the
24 internal workings of them. In fact, I'm not asking about
25 anything in terms of how they measure blood oxygen readings

1 or measure heart rate. Okay? Do you have that in mind? I
2 want to stay on the public record here, so I want you to be
3 careful not to reveal any confidential information. Okay,
4 sir?

5 MS. SWAROOP: Mr. Mueller, did you provide a copy
6 of those demonstratives to Complainants or to Mr. Scruggs?
7 I don't believe I see them in the cross binder that was
8 given to counsel.

9 MR. MUELLER: There's no requirement for cross
10 binders to be given to counsel, sir -- Ms. Swaroop.

11 MS. SWAROOP: I have a binder with cross exhibits
12 because we actually do have an agreement that two copies
13 would be provided to our team. I have my cross binder.
14 Mr. Scruggs has his cross binder.

15 My point is, the demonstratives exhibits that
16 you're referring to now do not appear to be in the cross
17 binder. So I'd like to know if I could have a copy.

18 MR. MUELLER: We can certainly get you a copy.
19 It was our understanding that demonstratives were not part
20 of the cross binders, the exhibits were, but not the
21 demonstratives, Ms. Swaroop. We're happy to get you a copy
22 of it too. It's a single page, and I can put it up right
23 now. It's RDX-11.2.

24 Q. Now, again, as I said, Mr. Scruggs, if you could,
25 please, sir, be careful not to talk about any confidential

1 information, because we're on the public record.

2 These are readings taken of the Masimo Watch
3 articles or physicals that you showed to our technical
4 experts, Professors Warren and Sarrafzadeh, during the March
5 14th, 2022 demonstrations.

6 Do you recall that demonstration that day, sir?

7 A. Yes, I do.

8 Q. Okay. And various physicals, as Masimo refers to
9 them, were presented that day by you, right?

10 A. Yes, that's correct.

11 Q. Now you handled them yourself, correct?

12 A. Yes.

13 Q. You did not permit Apple's experts to themselves
14 operate the devices, take readings on their own bodies,
15 correct?

16 A. Yes, that's correct.

17 Q. That is to say, you took the readings and you
18 only let the experts watch once you were satisfied that a
19 reading had been taken, correct?

20 A. The experts were in the room the whole time
21 during the demonstration, so they could see the entire
22 demonstration.

23 Q. But, sir, stay with my question. You only let
24 the experts read the numbers on the devices when you were
25 satisfied with the readings, correct?

1 A. They were able to see the readings the entire
2 time that I was doing the demonstration.

3 Q. Now they asked you for permission to also use a
4 finger clip sensor as a reference device; isn't that true?

5 A. I don't recall that.

6 Q. You didn't permit them to, did you.

7 A. We did not use a reference device.

8 Q. By the way, using reference devices, you know
9 what that means, right?

10 A. Yes, I do.

11 Q. Using reference devices is using a device to
12 compare the accuracy of one device against another, correct?

13 A. Yes, that's correct.

14 Q. It's a very common thing in the industry in which
15 you work, right, sir?

16 A. I don't know that it's common, but I know that
17 that's done.

18 Q. And you've done it yourself.

19 A. I don't know that I've used a reference device on
20 myself. I know that during clinical studies we'll sometimes
21 use reference devices.

22 Q. And by "we" you mean Masimo?

23 A. Yes, that's correct.

24 Q. Okay. Now if we look at the data here, we have
25 blood oxygen on the left and pulse rate on the right. Do

1 you see that, sir?

2 A. Yes.

3 Q. And there are various numbers, which I will
4 represent to you were recorded by our experts. You have no
5 reason to quarrel with those numbers, do you?

6 A. I would think that, if your experts recorded
7 them, that it is likely they were displayed.

8 Q. And do you see there's lists, CPX numbers, that
9 correspond to various devices, including the ones you
10 testified about earlier?

11 A. Yes, I see those.

12 Q. Now these demonstrations were taken where you
13 were sitting at a table, correct?

14 A. Yes, I was sitting.

15 Q. And you were there for about 75 minutes. Do I
16 have that right, sir?

17 A. I don't remember the specific time, but that
18 sounds about right.

19 Q. And you were sitting the entire time, correct?

20 A. Yes, I was sitting during the demonstrations.

21 Q. And I really don't mean to be flip in my next
22 question. You didn't go out for a jog midway through, did
23 you.

24 A. No, I did not go for a jog.

25 Q. All right. You remained sitting, correct?

1 A. Yes.

2 Q. So let's look at these readings. On the left we
3 have blood oxygen, and do you see in the top row, the
4 variation was between 95 percent and 99 percent? Do you see
5 that?

6 A. Yes, I see those three numbers reported.

7 Q. Now on the next row down we have a variation of
8 97 to 81. Do you see that?

9 A. Mm-hmm.

10 Q. Now a reading of 81 percent can be cause for
11 concern, correct?

12 A. I'm not a medical professional, so I don't know
13 what would be cause for concern.

14 Q. Well, sir, you're one of the leaders of the
15 sensor group at Masimo, aren't you?

16 A. Yes, of the mechanical design group.

17 Q. And you understand, sir, that a reading at 81 is
18 a cause for concern of a user of these types of devices,
19 correct?

20 A. I think I'd want to talk to one of our clinicians
21 or a doctor.

22 Q. So you don't know one way or the other?

23 A. I don't know what value would be cause for
24 concern.

25 Q. Well, you'd agree with me that the difference

1 between an 81 reading and a 97 reading on the same subject
2 sitting at the same table is a very significant variation,
3 isn't it?

4 A. I definitely see that that's a variation of 16
5 percent SpO2.

6 Q. That's a poorly functioning blood oxygen sensor,
7 isn't it.

8 A. I don't know that variation of 16 personnel means
9 that it was poorly performing, but I do see variation.

10 Q. Do you consider that good performance?

11 A. I don't think there's enough data here to
12 quantify whether or not it's good or bad performance.

13 Q. Let's go to the next row. The next device
14 measured your blood oxygen level at 100 percent, correct?

15 A. Yes, I see that.

16 Q. With no variation at all, right?

17 A. I see that.

18 Q. Now, in fact, these devices had a cap at 100
19 percent, didn't they.

20 A. I don't believe the devices display values over
21 100.

22 Q. So if there was some sort of reading that hit the
23 top of the charts, it's going to be listed as 100 no matter
24 what the particulars, correct?

25 A. Yes, that's how all pulse oximeters report

1 values.

2 Q. And the next row down has 100, 100, 100, 100,
3 100, right?

4 A. I see that, yes.

5 Q. Same with the one below that, correct?

6 A. Mm-hmm.

7 Q. And then below that we have 99.4, 100, 100. Do
8 you see that?

9 A. Yes, I do.

10 Q. And then three 98s, right?

11 A. Yes.

12 Q. So we have a variation from device to device from
13 81 to 100, correct?

14 A. Yes. The reported values here, I see 81 and I
15 CDX-100.

16 Q. Same person, sitting at the same table, in the
17 same session, there is variation from 81 to 100, correct?

18 A. Yes, I see that.

19 Q. Pulse rate, right-hand side of the screen, let's
20 take a look at the readings.

21 First device, 125, 113, 94, correct?

22 A. Yes.

23 Q. Now 125 is a pretty high pulse rate, isn't it?

24 A. Yes.

25 Q. It would indicate that you might be, in fact,

1 running, at least at a very, very brisk walk, correct?

2 A. Or stressed, yes.

3 Q. Or very stressed. That could be another reason

4 why the heart rate is extremely high, correct?

5 A. Yes.

6 Q. Now the next row down we have in the 90s and then

7 as low as 82, correct?

8 A. Yes, I see that.

9 Q. And, again, this is you being measured, right?

10 A. Mm-hmm.

11 Q. Same person, right, sir?

12 A. Yes.

13 Q. Same table, same session.

14 A. Correct.

15 Q. The next row down, the device measured your pulse

16 rate at 140 and then 52. Do you see that?

17 A. Mm-hmm. I see that.

18 Q. 140 is a very high pulse rate, correct?

19 A. Yes.

20 Q. 52 is extremely low. That's indicative of

21 somebody who might be sleeping or very not stressed,

22 correct?

23 A. Yes, 52 is lower than 140.

24 Q. And the device, same device, CPX-052C, measured

25 the same person's pulse rate as 140 and then 52, correct?

1 A. Yes, at different points in time.

2 Q. Now there's other numbers listed below for the
3 other devices, correct?

4 A. I see that.

5 Q. But, again, if we look at the sum total of these
6 we have variation of 52 to 140 as well as numbers in the
7 90's, 80's, and 100's, correct?

8 A. I see that variation, yes.

9 Q. And this variation, again, was the same subject,
10 same session, right?

11 A. Yes, these values were taken on me during the
12 same session.

13 Q. And you never once got up, correct?

14 A. I did not get up.

15 MR. MUELLER: At this point, Your Honor, we need
16 to go on the Masimo confidential record.

17 (Whereupon, the hearing proceeded in confidential
18 session.)

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1 O P E N S E S S I O N

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3 MR. LAQUER: Good afternoon.

4 JUDGE BHATTACHARYYA: Good afternoon. I see
5 Mr. Young is before us here.

6 THE WITNESS: Good afternoon, Your Honor.

7 JUDGE BHATTACHARYYA: Good afternoon. Do you
8 understand that the testimony -- that you are under an
9 obligation to tell the truth in your testimony today?

10 THE WITNESS: Yes, I do.

11 MICAH YOUNG,

12 having been first duly sworn and/or affirmed
13 on his oath, was thereafter examined and testified as
14 follows:

15 DIRECT EXAMINATION

16 BY MR. LAQUER:

17 Q. Can you please state your name?

18 A. Micah Young.

19 Q. What is your job title?

20 A. I'm Masimo's CFO and Executive Vice President.

21 Q. When did you join Masimo?

22 A. In October of 2017.

23 Q. What's your educational background?

24 A. I have a Bachelor of Science in accounting as
25 well as Criminal Justice, and that's from Indiana Wesleyan

1 University, and I earned my CPA shortly thereafter, although
2 I'm currently inactive.

3 Q. What are your responsibilities as Masimo's CFO
4 and Executive VP?

5 A. I'm responsible for all aspects of financing,
6 including accounting, financial planning and analysis, tax
7 and investor relations.

8 Q. How many people does Masimo employ in its
9 financial department?

10 A. We have just over a hundred employees in the
11 finance department.

12 Q. And who do you report to?

13 A. I report directly to Joe Kiani.

14 Q. Let's look at Complainants' Exhibit 1637, if you
15 could tell me whether you recognize this.

16 A. Yes, that's our latest Earnings Report for fiscal
17 year 2021.

18 Q. Let's turn to page 17 of the exhibit. Could you
19 tell me why did Masimo include the Masimo W1 watch in its
20 2021 Earnings Report here?

21 A. Well, the Masimo W1 watch is a top priority for
22 the company, and we've invested significant dollars over the
23 years to develop the watch and other wrist-worn devices, and
24 we wanted to also show investors that this is going to
25 become a larger part of our revenue earnings going forward.

1 Q. Please turn to page 19 of the exhibit. Can you
2 describe what is shown here?

3 A. Yes. This slide shows our Sound United
4 acquisition. We paid just over a billion dollars for Sound
5 United. That acquisition closed in April of this year.

6 Sound United is a premium consumer technology
7 leader with premium audio brands like Denon, Marantz, Bowers
8 & Wilkins, as well as Polk Audio, and they have over 20,000
9 points of retail distribution.

10 Q. And why did Masimo pay over one billion dollars
11 for Sound United?

12 A. If you look at the next slide, you'll see it's a
13 strategic priority for the company, and if you look
14 underneath cross-leveraging our core competencies and
15 capabilities, you'll see where this acquisition is strategic
16 for us and it helps us bring Masimo W1 watch to consumers
17 and bring it from our technologies from the hospital into
18 the home.

19 Q. Let's take a look next at Complainants' Exhibit
20 CX-1630. Let me know whether you recognize this.

21 A. Yes. That's our form 10-K for fiscal year 2020,
22 which is ending January 2nd, 2021.

23 Q. Please turn to page 40 of the exhibit. The last
24 paragraph there begins with:

25 Continuing technological advances and new product

1 introductions within the medical device industry place our
2 products at risk of obsolescence. For example, in September
3 2020 Apple Inc. announced that its Apple Watch Series 6
4 includes a pulse oximetry monitoring feature, which may
5 compete with certain of our existing products and products
6 in development, including the consumer versions of our iSpO2
7 and MightySat pulse oximeters.

8 Why did Masimo include that statement in its
9 10-K?

10 A. Well, at that time Apple just launched the Watch
11 6 Series, and we were concerned that the public would rely
12 on it for pulse oximetry rather than our other pulse
13 oximetry devices we have launched over the years, in
14 addition to the W1 watch that we were -- that we -- had been
15 in development during that time. So we disclosed it in the
16 10-K as a risk factor at that time.

17 MR. LAQUER: Your Honor, at this point I'd like
18 to go on Masimo's confidential record in order to discuss
19 CBI.

20 (Whereupon, the hearing proceeded in confidential
21 session.)

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3 CROSS-EXAMINATION

4 BY MR. MUELLER:

5 Q. Good afternoon, sir. It's nice to meet you. My
6 name is Joe Mueller, and I'd like to ask you a few
7 questions, if I could.

8 A. Yes. Thank you.

9 Q. Let's pull up CX-1630, which was an exhibit that
10 you were asked about during your direct testimony.

11 This is a form 10-K, right, sir?

12 A. Yes, that's correct.

13 Q. And let's take a look at page 40, which I think
14 was the same page you were asked about. And I want to focus
15 in on the same section that you were asked about, about
16 potential competition with MightySat --

17 A. Okay.

18 Q. -- and iSpO2. Do you recall that, sir?

19 A. Yes.

20 Q. In particular, there's a reference to the Apple
21 Watch Series 6 potentially competing with those products.
22 Do you see that?

23 A. Yes, I see that.

24 Q. Now you understand neither iSpO2 nor the
25 MightySat is a domestic industry product in this case?

1 A. Okay. Yes.

2 Q. And there's no reference here to the rainbow«
3 sensors, correct?

4 A. Not in that line.

5 Q. Right. There's no reference to the rainbow«
6 sensors competing with the Apple Watch, correct?

7 A. There's no reference in that document, no.

8 Q. And, in fact, there is no competition between the
9 rainbow« sensors and the Apple Watch, correct?

10 A. I can't answer that.

11 Q. Now the Masimo Watch right now is in something
12 called the limited market release phase, correct?

13 A. Yes, correct.

14 Q. It's not on the open commercial marketplace yet,
15 correct?

16 A. Yes.

17 Q. There's no competition between Apple and Masimo
18 with respect to the Apple Watch and the Masimo Watch in the
19 open commercial marketplace today, correct?

20 A. We've limited released it in the Middle East.

21 Q. Right. Not to the open commercial marketplace in
22 the U.S. or anywhere else in the world, correct?

23 A. Correct.

24 Q. Now today, as of today, in this limited market
25 release phase, what are the total revenues to Masimo for the

1 Masimo Watch?

2 A. I don't have that number. You'd have to get that
3 from Bilal Muhsin or his team.

4 Q. Well, sir, you're the Chief Financial Officer,
5 correct?

6 A. Correct.

7 Q. You just spent over a half hour giving us various
8 numbers, correct?

9 A. Correct.

10 Q. And you don't know the revenues of the Masimo
11 Watch as of today; is that right?

12 A. We're in a limited release, and at this point
13 it's not material to overall numbers.

14 Q. Less than a thousand dollars?

15 A. I can't give you a number on that.

16 Q. You don't know one way or the other if the total
17 revenues for the Masimo Watch as of today are less than a
18 thousand dollars, correct?

19 A. I don't know that at this time.

20 MR. MUELLER: At this point, Your Honor, we'll go
21 on the confidential Masimo record, if we could.

22 (Whereupon, the hearing proceeded in confidential
23 session.)

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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: Good afternoon,
4 Mr. Hammarth.

5 THE WITNESS: Good afternoon.

6 JUDGE BHATTACHARYYA: Do you understand that
7 you're under an obligation to tell the truth in your
8 testimony here today?

9 THE WITNESS: Yes, I do.

10 JEROEN HAMMARTH,
11 having been first duly sworn and/or affirmed
12 on his oath, was thereafter examined and testified as
13 follows:

14 JUDGE BHATTACHARYYA: Thank you.

15 DIRECT EXAMINATION

16 BY MR. LAQUER:

17 Q. Could you please state your name?

18 A. My name is Jeroen Hammarth.

19 Q. What is your job title?

20 A. I'm the CFO of Cercacor Labs.

21 Q. How long have you been Cercacor's CFO?

22 A. Since January of 2013.

23 MR. LAQUER: Your Honor, I'd like to go on to
24 Complainants' confidential record in order to discuss CBI.

25 (Whereupon, the hearing proceeded in confidential

1 session.)
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3 JUDGE BHATTACHARYYA: Moving back to the public
4 record.

5 MR. COX: I'm sorry. Let's take down the
6 exhibit. Thank you.

7 BY MR. COX:

8 Q. You'll agree with me, Mr. Hammarth, that
9 Cercacor's R&D includes R&D for clinical products, like
10 rainbow« sensors, correct?

11 A. Yes.

12 Q. And you'll agree that rainbow« sensors are kinds
13 of sensors used with external monitoring devices, right?

14 A. Sure. Yes.

15 Q. And those clinical products are used in places
16 like hospitals and doctors' offices, correct?

17 A. Masimo products do, yes.

18 Q. That's right. And those clinical products, like
19 rainbow«, are not the same as consumer wearable products,
20 correct?

21 A. Well, that's really not for me to make a
22 determination, right. Quite a lot in the market, we're
23 seeing a convergence between consumer products and medical
24 products, so I'm not sure that I can really answer that
25 question.

1 Q. Okay. So it's your understanding that a rainbow«
2 sensor used in an external monitoring device would be
3 considered a consumer wearable product; is that your
4 testimony?

5 A. No. What I'm saying is that I don't know if I'm
6 qualified to say what the difference is between a wearable
7 clinical product and a consumer wearable product.

8 Q. Okay. But you wouldn't go jogging while wearing
9 a rainbow« sensor with an external monitor, right?

10 A. Well, if I was wearing a continuous glucose
11 monitor, I could go jogging with that on, and that is a
12 clinical product that's wearable.

13 Q. You wouldn't go for a swim while wearing a
14 rainbow« sensor with an external monitor; is that right?

15 A. Well, if it was waterproof -- I don't know. See,
16 you're asking me for an opinion on the difference between a
17 clinical product and a consumer product, and, like I said,
18 I'm not sure that the market is going in that direction
19 where there's going to be such a clear delineation. I'm
20 probably not the right person to ask that question to.

21 Q. Very well. Thank you very much, Mr. Hammarth.

22 MR. COX: No further questions.

23 MR. LAQUER: Very briefly.

24

25

1 REDIRECT EXAMINATION

2 BY MR. LAQUER:

3 Q. Apple's counsel just asked you about product
4 categories and uses.

5 Are you familiar with the Ember« product?

6 A. Yes.

7 Q. Can you explain very briefly what that is?

8 A. Yeah. Ember is our product, which incorporates
9 our technologies for hemoglobin measurement, carbon monoxide
10 measurement, and some others, that's marketed to
11 individuals, consumers, who are mainly elite athletes to
12 measure their physiological parameters to help them with
13 their training.

14 MR. LAQUER: I have no further questions.

15 MR. COX: Just a brief recross, Your Honor, on
16 the questions that were just asked.

17 RECROSS-EXAMINATION

18 BY MR. COX:

19 Q. You just mentioned Cercacor's Ember« products; is
20 that right?

21 A. Yes.

22 Q. Those are -- those Ember« products are Cercacor's
23 one and only product, correct?

24 A. That is our current one and only product that we
25 sell today, yes.

1 Q. You'll agree that the Ember« is a small, niche
2 product, right?

3 A. It is. It is marketed to elite athletes, who do
4 things like marathons, Tour de France type of stuff, Ironman
5 Triathlons, those kinds of things, yes.

6 Q. Approximately how many Ember« units does Cercacor
7 sell every year?

8 A. Oh, in a given year, between 30 and 50.

9 Q. That's 30 and 50, not 30 and 50,000, right?

10 A. I'm talking about units, yes.

11 Q. Okay, 30 and 50 units.

12 MR. COX: No further questions. Thank you.

13 MR. LAQUER: I have no further questions.

14 JUDGE BHATTACHARYYA: Thank you, Mr. Hammarth.

15 THE WITNESS: Thank you.

16 MR. LAQUER: Complainants next call Daniel
17 McGavock.

18 JUDGE BHATTACHARYYA: Good afternoon,
19 Mr. McGavock.

20 THE WITNESS: Good afternoon.

21 JUDGE BHATTACHARYYA: Do you understand you're
22 under an obligation to tell the truth in your testimony here
23 today?

24 THE WITNESS: Yes, I am.

25 DANIEL M. MCGAVOCK,

1 having been first duly sworn and/or affirmed
2 on his oath, was thereafter examined and testified as
3 follows:

4 JUDGE BHATTACHARYYA: Thank you.

5 DIRECT EXAMINATION

6 BY MR. LAQUER:

7 Q. Could you state your name?

8 A. Daniel M. McGavock.

9 Q. What do you do professionally?

10 A. I'm a vice president at Charles River Associates,
11 and I'm the practice leader of the intellectual property
12 practice, and I specialize in financial and economic
13 consulting, primarily focused on intellectual property
14 matters, both in litigation context as well as outside of
15 litigation for strategy and transactional purposes.

16 Q. Could you briefly describe your educational
17 background?

18 A. Yes. I earned a Bachelor of Science degree in
19 accounting from Indiana University in 1984, and I'm also a
20 certified public accountant. I've been a CPA since 1985.

21 Q. Do you have prior experience in ITC
22 investigations?

23 A. Yes, I do. I've worked on several investigations
24 on behalf of both Complainants and Respondents.

25 MR. LAQUER: Your Honor, Complainants proffer

1 Mr. McGavock as an expert on financial matters, including
2 economic, domestic industry, bond, and commercial success.

3 MR. MUELLER: No objection, Your Honor.

4 JUDGE BHATTACHARYYA: At this time Mr. McGavock
5 is admitted as an expert in financial matters, including
6 economic, domestic industry, bond, and commercial success.

7 Q. Mr. McGavock, do you have an opinion regarding
8 the economic prong of domestic industry requirement in this
9 investigation?

10 A. Yes. It's my opinion that Masimo's domestic
11 investments in plant and equipment as well as labor or
12 capital are both quantitatively and qualitatively
13 significant in accordance with the requirements of section
14 337.

15 Q. What work did you do in preparing your opinion?

16 A. Well, I first -- I gained an understanding of the
17 patents and the products at issue, and then I also gained a
18 thorough understanding of the appendices that Mr. Young went
19 through in detail, and the sources of the information, how
20 the information was compiled, and I also did some
21 independent research.

22 Q. Did you consider Mr. Hammarth's appendix also?

23 A. Yes, I did.

24 Q. All right. And can you describe your independent
25 research?

1 A. Yes. Well, one of the, I think, most important
2 elements of my work was to actually visit the domestic
3 facilities where the research and development activities are
4 taking place in Irvine, not only research and development,
5 but manufacturing activities as well.

6 (Whereupon, the hearing proceeded in confidential
7 session.)

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1	C O N T E N T S			
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7	BILAL MUHSIN,	342	362	
8	STEPHEN SCRUGGS,	390	437	472 478
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1 COMPLAINTANTS' TABLE OF ADMITTED EXHIBITS FOR THE EVIDENTIARY
2 HEARING ON JUNE 6, 2022
3 JOE KIANI
4 CX-0364C
5 CX-0612C
6 CX-0691
7 CX-0777
8 CX-0783C
9 CX-1370
10 CX-1371
11 CX-1378
12 CX-1482C
13 CX-1483C
14 CX-1493C
15 CX-1511C
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17 CX-1520C
18 CX-1539C
19 CX-1586
20 CX-1612C
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22 CPX-0139aC
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25 CPX-0140C

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3	JX-001
4	JX-002
5	JX-003
6	RX-1467
7	RX-0333
8	MOHAMED DIAB
9	JX-007
10	CPX-0152C
11	CX-0342C
12	CX-0388C
13	CX-0397C
14	CX-0426C
15	CX-0427C
16	CX-0430C
17	CX-0440C
18	CX-0454C
19	CX-0584C
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21	CX-0589C
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1	CX-0797C
2	CX-0816C
3	CX-0818C
4	CX-1635C
5	AMMAR AL-ALI
6	CX-0004
7	CX-0352C
8	CX-0355C
9	CX-0356C
10	CX-0357C
11	CX-0370C
12	CX-0375C
13	CX-0378C
14	CX-0433C
15	CPX-0022C
16	CPX-0022aC
17	CPX-0052aC
18	CPX-0052C
19	CPX-0054aC
20	CPX-0054C
21	CPX-0056C
22	CPX-0056aC
23	COMPLAINANTS' DEPOSITION DESIGNATIONS AND
24	EXHIBITS
25	David Amor - CX-0273C

1	CX-0266C
2	CX-0267C
3	CX-0269C
4	Ueyn Block - CX-0281C
5	CX-0057C
6	CX-0058C
7	CX-0059C
8	CX-0060C
9	CX-0007C
10	CX-0067
11	CX-0061C
12	CX-0103
13	CX-0062C
14	CX-0063C
15	CX-0064C
16	CX-0068C
17	CX-0069C
18	CX-0070C
19	CX-0071C
20	CX-0072C
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22	CX-0104C
23	CX-0106C
24	CX-0011C
25	CX-0109C

1	CX-0110C
2	CX-0111C
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4	CX-0114C
5	CX-0103
6	CX-0118
7	Diedre Caldbeck - CX-0275C
8	CX-0240C
9	CX-0241C
10	CX-0242
11	CX-0244
12	CX-0245C
13	Mathieu Charbonneua-Lefort - CX-0283C
14	CX-0100C
15	CX-0022C
16	CX-0023C
17	CX-0024C
18	CX-0025C
19	CX-0026C
20	CX-0011C
21	CX-0027C
22	CX-0028C
23	CX-0031C
24	CX-0032C
25	CX-0033C

1	CX-0035C
2	CX-0037C
3	CX-0038C
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5	Aditya Dua - CX-0285C
6	CX-0092C
7	CX-0094C
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10	CX-0100C
11	Brian Land - CX-0287C
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13	CX-0006C
14	Paul Mannheimer - CX-0289C
15	CX-0007C
16	CX-0010
17	CX-0011C
18	CX-0012C
19	Saahil Mehra - CX-0291C
20	CX-0189C
21	CX-0190C
22	CX-0191C
23	CX-0192C
24	CX-0068C
25	CX-0069C

1	CX-0070C
2	CX-0071C
3	CX-0072C
4	CX-0073C
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6	CX-0193C
7	CX-0106C
8	CX-0194C
9	CX-0107C
10	CX-0195C
11	CX-0100C
12	CX-0196C
13	CX-0197C
14	CX-0011C
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16	CX-0198C
17	RX-0294C (Dep. Ex. 108)
18	CX-0199C
19	CX-0201C
20	CX-0202C
21	CX-0203C
22	CX-0110C
23	CX-0205C
24	CX-0206C
25	CX-0207C

1	CX-0208C
2	CX-0209C
3	CX-0210C
4	CX-0211C
5	CX-0212C
6	CX-0213C
7	CX-0214C
8	CX-0215C
9	Mark Rollins - CX-0293C
10	CX-0051C
11	CX-0128C
12	CX-0129C
13	CX-130C
14	RX-0928C (Depo. Ex. 131)
15	CX-0132C
16	CX-0133C
17	CX-0134C
18	CX-0135C
19	CX-1216C (Depo. Ex. 136C)
20	CX-0137
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22	Tao Shui - CX-0295C
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25	CX-0015C

1	CX-0016C
2	CX-0017C
3	Vivek Venugopal - CX-0297C
4	CX-0051C
5	CX-0052C
6	CX-0053C
7	CX-0054C
8	CX-0055C
9	CX-0056C
10	CX-0057C
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20	CX-0100C
21	RX-0678C (Depo. Ex. 120)
22	CX-0123C
23	CX-0051C
24	CX-0125C
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1	CX-0127C
2	Asserted Patents, File Histories, and Assignments
3	(Category A)
4	JX-001
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6	JX-003
7	JX-004
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7	EDIS Dkt. No. 770692
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10	CX-1254C
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24	CX-1228C
25	CX-1227C

1	CX-1257C
2	CX-1256C
3	Physicals of the Apple Watch Series 6 and
4	Series 7 and Components Thereof (Category G)
5	CPX-0160
6	CPX-0160a
7	CPX-0161
8	CPX-0161a
9	CPX-0162
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11	CPX-0163
12	CPX-0163a
13	CPX-0166
14	CPX-0166a
15	CPX-0167
16	CPX-0167a
17	CPX-0168C
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24	CPX-0171aC
25	CPX-0172C

1	CPX-0172aC
2	CPX-0173C
3	CPX-0173aC
4	CPX-0174C
5	CPX-0174aC
6	CPX-0175C
7	CPX-0175aC
8	CPX-0176C
9	CPX-0176aC
10	CPX-0177C
11	CPX-0177aC
12	CPX-0178C
13	CPX-0178aC
14	CPX-0179C
15	CPX-0179aC
16	CPX-0180C
17	CPX-0180aC
18	CPX-0181C
19	CPX-0181aC
20	
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1 C E R T I F I C A T E

2 TITLE: CERTAIN LIGHT-BASED PHYSIOLOGICAL MEASUREMENT DEVICES
3 AND COMPONENTS THEREOF

4 INVESTIGATION NO.: 337-TA-1276

5 HEARING DATE: June 7, 2022

6 LOCATION: Washington, D.C. - Remote

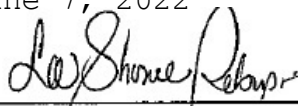
7 NATURE OF HEARING: Evidentiary Hearing

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11 Commission.

12 Date: June 7, 2022

13 Signed:

14 ss//



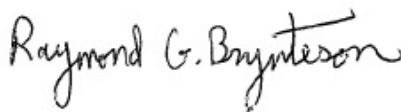
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16 Representative

17

18 I hereby certify that I am not the court reporter
19 and that I have proofread the above-referenced transcript of
20 the proceedings of the U.S. International Trade Commission
21 against the aforementioned court reporter's notes and
22 recordings for accuracy in transcription in the spelling,
23 hyphenation, punctuation and speaker identification and did
24 not make any changes of a substantive nature. The
25 foregoing/attached transcript is a true, correct and
complete transcription of the proceedings.

Signed:

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20

21 I hereby certify that I reported the
22 above-referenced proceedings of the U.S. International Trade
23 Commission and caused to be prepared from my record media
24 and notes of the proceedings a true, correct and complete
25 verbatim recording of the proceedings.

Signed:

ss//



25

UNITED STATES INTERNATIONAL TRADE COMMISSION

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In the Matter of

Investigation No.

CERTAIN LIGHT-BASED PHYSIOLOGICAL 337-TA-1276

MEASUREMENT DEVICES AND COMPONENTS

THEREOF

-----x

REVISED AND CORRECTED TRANSCRIPT

OPEN SESSIONS

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1 UNITED STATES INTERNATIONAL TRADE COMMISSION

2 Washington, D.C.

3 Before the Honorable Monica Bhattacharyya

4 Administrative Law Judge

5

6 -----x

7 In the Matter of Investigation No.

8

9 CERTAIN LIGHT-BASED PHYSIOLOGICAL 337-TA-1276

10 MEASUREMENT DEVICES AND COMPONENTS

11 THEREOF

12 -----x

13

14

15 EVIDENTIARY HEARING

16 Wednesday, June 8, 2022

17 Volume III

18

19

20 The parties met via remote videoconferencing
21 pursuant to notice of the Administrative Law Judge at 9:30
22 a.m. Eastern.

23

24

25 Reported by: Linda S. Kinkade RDR CRR RMR RPR CSR

1 A P P E A R A N C E S:

2 [All parties appeared via remote videoconferencing and/or
3 telephonically.]

4

5 Counsel for Complainants Masimo Corporation and Cercacor
6 Laboratories, Inc.:

7 KNOBBE, MARTENS, OLSON & BEAR, LLP

8 2040 Main Street, Fourteenth Floor

9 Irvine, California 92614

10 (949) 760-0404

11 Stephen C. Jensen, Esq.

12 Joseph R. Re, Esq.

13 Sheila N. Swaroop, Esq.

14 Ted M. Cannon, Esq.

15 Kendall M. Loebbaka, Esq.

16 Douglas B. Wentzel, Esq.

17 Irfan A. Lateef, Esq.

18 Brian C. Claassen, Esq.

19 Daniel C. Kiang, Esq.

20 Douglas B. Wentzel, Esq.

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Complainants Masimo Corporation and Cercacor
4 Laboratories, Inc.:

5 KNOBBE, MARTENS, OLSON & BEAR, LLP

6 1717 Pennsylvania Avenue, NW, Suite 900

7 Washington, DC 20006

8 (202) 640-6400

9 Jonathan E. Bachand, Esq.

10

11 KNOBBE, MARTENS, OLSON & BEAR, LLP

12 925 4th Avenue, Suite 2500

13 Seattle, Washington 98104

14 (206) 405-2000

15 Carol Pitzel Cruz, Esq.

16

17

18

19

20

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 1875 Pennsylvania Avenue, NW

6 Washington, DC 20006

7 (202) 663-6000

8 Michael D. Esch, Esq.

9 David L. Cavanaugh, Esq.

10

11 WILMER CUTLER PICKERING HALE AND DORR LLP

12 2600 El Camino Real, Suite 400

13 Palo Alto, California 94306

14 (650) 858-6000

15 Mark D. Selwyn, Esq.

16

17

18

19

20

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 60 State Street

6 Boston, Massachusetts 02109

7 (617) 526-6000

8 Joseph J. Mueller, Esq.

9 Richard Goldenberg, Esq.

10 Sarah R. Frazier, Esq.

11 Jonathan A. Cox, Esq.

12 Nina Garcia, Esq.

13 Cynthia D. Vreeland, Esq.

14

15

16 WILMER CUTLER PICKERING HALE AND DORR LLP

17 1225 17th Street, Suite 2600

18 Denver, Colorado 80202

19 (720) 598-3459

20 Ravi S. Deol, Esq.

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 350 South Grand Avenue, Suite 2400

6 Los Angeles, California 90071

7 (213) 443-5300

8 Derek Gosma, Esq.

9

10

11

12

13

14

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17 *** Index appears at end of transcript ***

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1 P R O C E E D I N G S

2 (In session at 9:30 a.m.)

3 JUDGE BHATTACHARYYA: Good morning. We're back
4 on the record. Let's start on the public record. Is there
5 any housekeeping to take care of before we begin?

6 MS. SWAROOP: Your Honor, we do have a table of
7 admitted exhibits. I think we're just waiting on Apple to
8 confirm some of the final descriptions and then that should
9 be ready to go. Apart from that Complainants have no
10 further housekeeping and we're ready to begin with the
11 examination of Mr. Goldberg, which will be conducted by
12 Mr. Lateef.

13 MR. MUELLER: Good morning, Your Honor. Joe
14 Mueller on behalf of Apple. Just a couple of quick things.

15 We have two objections to some Goldberg testimony
16 and exhibits. Mr. Selwyn could address those briefly now,
17 Your Honor, if Your Honor pleases, or we can wait until the
18 testimony, whatever your preference is.

19 JUDGE BHATTACHARYYA: Why don't we do that
20 argument now. It could be that I would defer ruling until
21 the testimony, but I would like to hear argument.

22 MR. MUELLER: Thank you, Your Honor. Mr. Selwyn
23 will do this.

24 MR. SELWYN: Good morning, Your Honor.

25 JUDGE BHATTACHARYYA: Good morning.

1 MR. SELWYN: We have two objections with respect
2 to Mr. Goldberg's anticipated testimony, which I'll briefly
3 state.

4 First, it appears that Masimo intends to admit
5 Mr. Diab's deposition testimony through Mr. Goldberg. We
6 object to that. Mr. Diab was present for the hearing and
7 Masimo could have elicited any relevant testimony during his
8 examination. The rules don't permit a party to use a
9 deposition of its own witness in support of itself where the
10 witness was available.

11 And, second, it appears that Masimo intends to
12 offer more than 20 exhibits through Mr. Goldberg for which
13 he was never identified as a sponsoring witness. If it were
14 just a couple of exhibits, we could overlook that, but it's
15 more than 20. We didn't have the notice that the ground
16 rules require and we object.

17 JUDGE BHATTACHARYYA: Mr. Lateef, is it?

18 MR. LATEEF: Yes, that's correct.

19 JUDGE BHATTACHARYYA: Okay.

20 MR. LATEEF: Thank you, Your Honor. Last night
21 we had emailed Mr. Selwyn's team and said that Masimo does
22 not seek to admit the Diab deposition into testimony, so I'm
23 not sure why he is maintaining that objection.

24 MR. SELWYN: I'm making that objection because
25 the note indicated that Masimo intended to rely upon his

1 deposition testimony. So it was not at all evident how that
2 was going to be used.

3 If Mr. Goldberg will just say I considered it as
4 part of all the deposition testimony in the case, we have no
5 problem with that, but if the intent is to use Mr. Goldberg
6 in order to offer deposition designations from Mr. Diab,
7 then we object.

8 MR. LATEEF: I think our position was clear that
9 we're not admitting it into evidence, so I think this
10 objection should be overruled.

11 JUDGE BHATTACHARYYA: Mr. Lateef, could you
12 describe how you intend to -- what the witness is going to
13 say in terms of Mr. Diab's testimony?

14 MR. LATEEF: I considered --

15 JUDGE BHATTACHARYYA: Deposition testimony.

16 MR. LATEEF: I considered Mr. Diab's deposition
17 testimony.

18 JUDGE BHATTACHARYYA: Is he going to describe
19 Mr. Diab's deposition testimony?

20 MR. LATEEF: No.

21 JUDGE BHATTACHARYYA: Based on that
22 representation, the objection is overruled at this time.

23 With respect to the exhibits?

24 MR. LATEEF: I don't know what exhibits he is
25 talking about. They were not -- there was no objection when

1 we gave him the list of exhibits two days ago.

2 MR. SELWYN: I don't think that's right,
3 Your Honor. We did object to exhibits for which
4 Mr. Goldberg is apparently going to be the sponsor for which
5 there was never an indication that he would be the
6 sponsoring witness. As I say, there are more than 20 in
7 that category.

8 JUDGE BHATTACHARYYA: Can you tell me the
9 timeline of what happened? When were the --

10 Mr. Lateef, do you agree that Mr. Goldberg wasn't
11 listed as a sponsoring witness for these exhibits?

12 MR. LATEEF: I don't know what exhibits he is
13 talking about.

14 JUDGE BHATTACHARYYA: The parties need to meet
15 and confer about this. The parties were supposed to meet
16 and confer on these kinds of issues --

17 MR. LATEEF: We've had about three exchanges of
18 emails about Goldberg's slides, and I don't recall there
19 being mention of any exhibits being objected to. There was
20 a meet-and-confer on Monday evening about exhibits, and I
21 did not see further correspondence about that.

22 MR. SELWYN: Your Honor, we did object at that
23 time, and it was not cured. They were not removed from the
24 list. I can lead the list, if Your Honor pleases.

25 JUDGE BHATTACHARYYA: When did you tell

1 Mr. Lateef's team that you were objecting to those exhibits?

2 MR. SELWYN: It would have been Monday evening.

3 MR. LATEEF: All of the documents have already
4 been admitted as far as I can tell through the depositions
5 of Apple's witnesses that were admitted yesterday.

6 MR. SELWYN: We checked that, Your Honor, and
7 that's true as to some, but there's still more than 20 that
8 were not.

9 MR. LATEEF: I'd like to see that list of 20 that
10 he is maintaining are objected to.

11 MR. SELWYN: I'll read it Your Honor. CX-11C,
12 CX-12C, 15C, 25C, 57C, 59C, 100C, 105C, 111C, 193C, 195C,
13 198C, 199C, 206C, 211C, 215C, 280C, 282C, 290C and 298C.

14 JUDGE BHATTACHARYYA: Mr. Selwyn, do you have a
15 copy of the email where you provided notice of your
16 objections to these exhibits?

17 MR. SELWYN: We're locating it, Your Honor.

18 JUDGE BHATTACHARYYA: Thank you.

19 MR. SELWYN: I think we're going to try to
20 display it on the screen, Your Honor.

21 JUDGE BHATTACHARYYA: Okay. I guess a further
22 question I have for the parties is, to the extent -- are
23 these major documents such that we need to rule on this
24 right now, or could this be addressed later?

25 MR. SELWYN: Your Honor, we don't know how

1 they're going to be used in the examination.

2 So here was the email that we sent. If we scroll
3 up, I believe we will see the first objection.

4 At the time, Your Honor, nearly all of his
5 exhibits were not admitted and he was not listed as a
6 sponsoring witness. As Mr. Lateef points out, some have
7 since been admitted but more than 20 have not and he was not
8 listed as a sponsor.

9 MR. LATEEF: I don't see a list of 20 here. I
10 don't see a list of any exhibits here. I've gone through at
11 least the first three exhibits that Mr. Selwyn mentioned.
12 They are all in the record as of yesterday morning.

13 For example, Exhibit 11 came in through the
14 deposition testimony of Dr. Mehra yesterday. Exhibit 57
15 came in through the deposition testimony of Dr. Venugopal
16 Gopal. 100 came in through the deposition testimony of
17 Dr. Mehra. Exhibit 111 came in through the deposition
18 testimony of Dr. Mehra. Exhibits 12, 15, and 25 have also
19 come in through the deposition testimony of various Apple
20 witnesses. Exhibit 59 came in through the deposition
21 testimony of Ueyn Block. Exhibit 59 came in through the
22 deposition testimony of Ueyn Block. Exhibit 3 -- Exhibit
23 211 came in through the deposition testimony of Dr. Mehra.

24 MR. SELWYN: Your Honor, just to short-circuit
25 it, we obviously have a discrepancy. If we could go offline

1 to resolve it.

2 MR. LATEEF: No, you brought this up, and I
3 clearly indicated that they are in the record.

4 JUDGE BHATTACHARYYA: Do you want to continue
5 with your -- complete your list, Mr. Lateef, and then I
6 think we should take a break and the parties can discuss
7 what they want to do.

8 Mr. Lateef, did you have further --

9 MR. LATEEF: I haven't seen this list of 20
10 exhibits, and I would -- I'd like to proceed with the
11 witness at this time.

12 JUDGE BHATTACHARYYA: All right. But I have not
13 ruled on the objections. Mr. Lateef, if I don't rule on
14 them now, if we defer this to a later point, it could be
15 that some of the testimony will be subject to motion to
16 strike. Is that okay with you?

17 MR. LATEEF: Okay. Let's take the break.

18 Are those all your objections, Mr. Selwyn?

19 MR. SELWYN: Yes, that would complete our
20 objections to anticipated testimony.

21 MR. LATEEF: And are you removing your objections
22 to 11, 57, 100, 111?

23 MR. SELWYN: As I say, that's or objections to
24 the anticipated testimony.

25 MR. LATEEF: No, are you removing your objections

1 to 11, 57, 100, and 111 that I just identified that came in
2 through the deposition testimony?

3 JUDGE BHATTACHARYYA: Counsel, let's take a break
4 for five minutes.

5 MR. LATEEF: I deserve a response to that
6 question.

7 MR. SELWYN: Your Honor, I'll respond if you
8 would like me to.

9 JUDGE BHATTACHARYYA: No, I would like you to
10 meet and confer offline and come back and let me know your
11 respective positions.

12 MR. SELWYN: Certainly. Thank you.

13 MR. LATEEF: Thank you, Your Honor.

14 (Whereupon, the proceedings recessed at 9:44
15 a.m.)

16 (In session at 9:49 a.m.)

17 JUDGE BHATTACHARYYA: We're back on the record.
18 Did counsel have a chance to address this issue?

19 MR. SELWYN: Yes, Your Honor. We've looked at
20 the list. It does appear that some of the exhibits were
21 admitted yesterday. We haven't had time to confirm that
22 all. But in the interest of time we'll withdraw the
23 objection so we can move forward.

24 JUDGE BHATTACHARYYA: Very well.

25 MR. LATEEF: Your Honor, I'd like the record to

1 reflect that this time goes to Apple.

2 JUDGE BHATTACHARYYA: Are you asking me for a
3 ruling on that?

4 MR. LATEEF: Yes, I am.

5 JUDGE BHATTACHARYYA: According to what I
6 understand about the parties' agreement, that seems
7 appropriate.

8 MR. LATEEF: Thank you, Your Honor.

9 MR. MUELLER: Your Honor, we have no further --

10 MR. LATEEF: We would like to call Dr. Goldberg
11 to the stand please. Thank you.

12 JUDGE BHATTACHARYYA: I'm sorry. Mr. Mueller,
13 did you --

14 MR. MUELLER: I was just saying, Your Honor, we
15 have no further issues this morning, and Mr. Selwyn will do
16 the cross-examination of Dr. Goldberg. Thank you,
17 Your Honor.

18 JUDGE BHATTACHARYYA: Okay. Thank you. Welcome,
19 Dr. Goldberg.

20 THE WITNESS: Good morning, Your Honor.

21 JUDGE BHATTACHARYYA: Do you understand that
22 you're under an obligation to tell the truth in your
23 testimony today?

24 THE WITNESS: Yes, I understand that.

25

1 //

2 JACK GOLDBERG,

3 having been first duly sworn and/or affirmed
4 on his oath, was thereafter examined and testified as
5 follows:

6 JUDGE BHATTACHARYYA: Thank you.

7 DIRECT EXAMINATION

8 BY MR. LATEEF:

9 Q. Good morning, Mr. Goldberg. Could you please
10 state your name for the record?

11 A. My name is Jack Goldberg.

12 Q. Did you provide or prepare demonstrative slides
13 to assist you in today's testimony?

14 A. Yes, I did.

15 Q. Okay. Let's pull up the cover to the
16 demonstratives.

17 Does this look like your demonstratives that you
18 prepared for today's testimony?

19 A. Yes.

20 Q. Let's go to the next slide. Could you please
21 tell us the scope of your analysis in this case?

22 A. Yes. My analysis was limited to issues involving
23 the '127 patent, specifically infringement of claim 9 by the
24 Apple Watch Series 6 and 7 products and the Next Generation
25 Apple Watch, the domestic industry technical prong of claim

1 9, which includes Masimo's current and early rainbow«
2 sensors, and the validity of the '127 patent, which will be
3 covered in my rebuttal testimony.

4 Q. What are your opinions that you're going to state
5 today?

6 A. That the Apple products infringe claim 9 of the
7 '127, that the domestic industry products practice the
8 claims of the '127 patent, and that the '127 patent -- well,
9 I'm not going to address that today, that's for later,
10 regarding validity.

11 Q. Great. Let's go to the next slide. Could you
12 please tell us about your qualifications in this case?

13 A. Yes. I have a bachelor's, master's degree, both
14 from MIT, in electrical engineering and computer science.
15 During the years '73 to '84 I had varied industry
16 experience, but in '84 through '95 I worked for
17 IVAC Corporation, a medical device company that offered
18 products, including infusion pumps, blood pressure machines,
19 and clinical thermometers.

20 My experience at IVAC involved lots of work with
21 sensors, heat flow, thermal management, fluid flow
22 management, and projects including the noninvasive
23 measurement of cardiac output, the processing of optical and
24 radio frequency signals and other.

25 From 1995 until the present I've been working at

1 Metrionix, which is my own company, as a consultant and
2 expert in various fields, including medical sensors.

3 MR. LATEEF: Your Honor, at this time Masimo
4 moves to have Mr. Goldberg moved as a technical expert in
5 the field of physiological monitoring technologies.

6 JUDGE BHATTACHARYYA: Any objection?

7 MR. SELWYN: We have no objection. We do intend
8 to cross him on the extent of his expertise, however.

9 JUDGE BHATTACHARYYA: At this time Dr. Goldberg
10 is admitted as an expert in the field of physiological
11 technologies.

12 Q. Okay. Let's go to the next slide. Could you
13 please explain what you're providing here on this slide is
14 this?

15 A. Yes. This slide was shown earlier during others'
16 testimony. This is Fig. 12 from the '127 patent. It shows
17 light emitters and the temperature sensors, both coupled to
18 the thermal mass.

19 Quoting from the patent, the substrate shown
20 here, substrate 1200, quote, is also configured with a
21 relatively significant thermal mass, which stabilizes and
22 normalizes the bulk temperature so that the thermistor
23 measurement of bulk temperature is meaningful.

24 The patent also -- and that occurs at column 10,
25 lines 67, through column 11, line 4.

1 The patent also expresses the fact that the
2 thermistor measures a bulk temperature of the thermal mass,
3 which is used to estimate the operating wavelengths of all
4 the LEDs, and that occurs at column 10, 22-48.

5 Q. Okay. Let's go to the next slide, and can you
6 explain the identifiers you're going to use for your
7 analysis?

8 A. Yes. This slide documents all of the elements
9 and the shorthand reference to those elements ranging from
10 the preamble to 7A through 7H of claim 7, and the verbiage
11 of claim 9.

12 Q. Okay. Let's go to the next slide.

13 Did you review any stipulations relevant to your
14 analysis?

15 A. I did. I reviewed document 770692, there are
16 three stipulations there which basically explain that,
17 regarding the hardware components of the blood oxygen
18 feature, it's stipulated that there are no differences
19 between the various models of the Apple Watch Series 6, no
20 differences between the various models of the Apple Watch 7,
21 and that for the purposes here those hardware components of
22 the Apple Watch 6 are representative of the hardware
23 components of the Apple Watch 7 and vice versa.

24 I also saw the stipulation, Complainants' Exhibit
25 1259, which in paragraph 7 states that a determination

1 regarding the Apple Watch Series 7 regarding infringement of
2 any claim would apply equally to the currently planned
3 design of Apple's Next Generation watches.

4 Q. Great. Let's go to the next slide.

5 Could you please explain your analysis for the
6 preamble?

7 A. Yes. The accused products satisfy the preamble.
8 This is undisputed. The preamble requires a sensor capable
9 of emitting light into the tissue, and this evidence from an
10 Apple Watch consumer support page points out that the blood
11 oxygen application includes photodiodes, light emitting --
12 photodiodes-type detectors for detecting the amount of light
13 reflected back from the light emitters, which include red
14 and green, and infrared light emitters, and that advanced
15 algorithms are used to evaluate the color of the blood and,
16 thereby, determine the oxygen level.

17 MR. LATEEF: I think for the next part of the
18 testimony we need to go on the Apple CBI transcript,
19 Your Honor.

20 (Whereupon, the hearing proceeded in confidential
21 session.)

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3 CROSS-EXAMINATION

4 BY MR. SELWYN:

5 Q. Good morning, Mr. Goldberg.

6 A. Good morning.

7 Q. You were engaged by Masimo's law firm, Knobbe
8 Martens, to serve as an expert to testify on behalf of
9 Masimo in this matter, correct?

10 A. That is correct.

11 Q. And much of your consulting practice is tied to
12 the Knobbe firm, correct?

13 A. Currently, yes.

14 Q. This is not your only ongoing case for which you
15 are engaged by the Knobbe firm, correct?

16 A. Yes.

17 Q. And, in fact, there are currently five different
18 ongoing matters for which you have been hired by Knobbe,
19 correct?

20 A. I don't think there's five.

21 Q. Well, let's see what you said in your deposition.

22 Can we have, please, page 14, lines 8-11? We'll
23 put it on the screen.

24 MR. LATEEF: Should the witness now open the
25 cross box?

1 MR. SELWYN: That would be fine.

2 A. I have it.

3 Q. Do you remember being asked this question and
4 giving this answer:

5 Question. Five of the matters for which you are
6 currently engaged by Knobbe Martens are listed on your CV as
7 ongoing, correct?

8 Answer. That's correct.

9 Were you asked that question and did you give
10 that answer?

11 A. At that time I gave that answer, yes.

12 Q. And you've been retained by Knobbe for 10 or 11
13 different matters in recent years, correct?

14 A. I would say so.

15 Q. Now, sir, you don't hold yourself as an expert in
16 the design of medical sensors broadly or generally, correct?

17 A. I have -- I'm not sure I can answer that.

18 Q. Let's see what you said at your deposition.

19 Can we have page 43, lines 1-6.

20 Do you remember being asked this question and
21 giving this answer:

22 Do you hold yourself out to be an expert in the
23 design of medical sensors?

24 Answer. Again, medical sensors cover a very
25 broad range of technologies. I've never held myself out to

1 be an expert in the design of medical sensors broadly or
2 generally.

3 Were you asked that question and did you give
4 that answer?

5 A. I did.

6 Q. You've never designed a pulse oximeter, have you,
7 sir?

8 A. That is correct.

9 Q. You've never done any research and development
10 for a pulse oximeter, correct?

11 A. I was engaged in investigation of the current
12 state of the art involving pulse oximeters while I was
13 working for IVAC Corporation. I'm not sure that --

14 Q. Sir, you've never done any research and
15 development in the laboratory for a pulse oximeter, correct?

16 A. That is correct.

17 Q. And you've never published any books, papers or
18 articles regarding pulse oximetry or pulse oximeters,
19 correct?

20 A. Correct.

21 MR. SELWYN: Your Honor, I think we now have to
22 go on to the Apple confidential record.

23 (Whereupon, the hearing proceeded in confidential
24 session.)

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3 JUDGE BHATTACHARYYA: Let's move to the public
4 record.

5 MR. LATEEF: Are we ready to proceed?

6 JUDGE BHATTACHARYYA: Yes.

7 BY MR. LATEEF:

8 Q. Mr. Goldberg, could you please explain your
9 experience with temperature measurement or sensing?

10 A. Yes. While at IVAC I did a lot of work involving
11 temperature measurement. I worked on an infrared
12 thermometer. I worked on various aspects of other clinical
13 thermometers that involved thermistors. I have done a lot
14 of projects that involved the measurement of heat. I worked
15 on the equipment used in manufacturing thermometers, that
16 involved temperature measurement.

17 Q. Great. Does the '127 patent anywhere describe
18 testing the average temperature of the LEDs?

19 A. No, it does not.

20 Q. Does the thermistor in the '127 patent measure
21 temperature in the same manner as the Apple Watch?

22 A. They both employ thermistors, and thermistors are
23 located on the circuit board.

24 Q. That's a sufficient answer.

25 Can we now move to the Apple CBI confidential

1 record?

2 (Whereupon, the hearing proceeded in confidential
3 session.)

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3 MR. CLAASSEN: Good morning, Your Honor. This is
4 Brian Claassen on behalf of Masimo. For the next witness
5 Masimo calls Dr. Vijay Madisetti.

6 THE WITNESS: Good morning, Your Honor.

7 JUDGE BHATTACHARYYA: Good morning,
8 Dr. Madisetti. Do you understand you're under an obligation
9 to testify truthfully today?

10 THE WITNESS: I do.

11 VIJAY MADISETTI,

12 having been first duly sworn and/or affirmed
13 on his oath, was thereafter examined and testified as
14 follows:

15 DIRECT EXAMINATION

16 BY MR. CLAASSEN:

17 Q. Good morning, Dr. Madisetti.

18 A. Good morning, sir.

19 Q. Please introduce yourself and spell your last
20 name for the court reporter.

21 A. My name is Vijay Madisetti. My last name is
22 spelled M-A-D-I-S-E-T-T-I.

23 Q. Did you prepare demonstrative slides regarding
24 your analysis in this case?

25 A. Yes, I did.

1 Q. Let's pull up CDX-11, please.

2 Turning to the next slide, slide 2,

3 Dr. Madisetti, will you explain your background?

4 A. Yes. I'm a full professor at Georgia Tech in the
5 Colleges of Engineering and Computer Science. I have a
6 Ph.D. from the University of California at Berkeley in
7 electrical engineering and computer science, and my CV is
8 shown attached as Exhibit 329.

9 Q. Dr. Madisetti, is your CV Exhibit 329 current?

10 A. Yes.

11 Q. Turning to the next slide, Dr. Madisetti, could
12 you tell me your assignment in this case? Excuse me. Let's
13 go to slide 4, please.

14 Dr. Madisetti, can you explain your background
15 with respect to -- with respect to publications and books
16 that you've written?

17 A. Yes. In the area of this investigation I've been
18 working, teaching, researching, and consulting in the area
19 of signal processing, chip design, software design, for over
20 30 years.

21 These are some of the books that I've written,
22 starting back in the '90s until last year, I've been focused
23 on the areas of signal crossing, chip design, and software,
24 and along the way I've also taught many courses and done
25 research in these areas.

1 Q. Turning to the next slide, Dr. Madisetti, can you
2 describe for the ALJ what technical articles you've written
3 relating to biological signal processing?

4 A. Yes. Over the past 30 years I've authored many
5 papers in technologies such as filters, cancellers,
6 noise-reduction techniques, adaptive digital filters, and
7 also, for example, on the right, pulse signals, pulse
8 oximetry is a special case of this particular general
9 problem. I've also designed a pulse oximeter.

10 MR. CLAASSEN: Your Honor, at this time Masimo
11 moves to admit Dr. Madisetti as a technical expert in the
12 field of physiological monitoring technologies.

13 JUDGE BHATTACHARYYA: Any objection?

14 MS. FRAZIER: There is, Your Honor. No objection
15 to Dr. Madisetti being admitted as an expert, but we would
16 request that it be in the areas of expertise he recited --
17 signal processing, chip design, and software.

18 MR. CLAASSEN: Your Honor --

19 JUDGE BHATTACHARYYA: Mr. Claassen, is that
20 acceptable to you?

21 MR. CLAASSEN: Your Honor, Dr. Madisetti has
22 rendered opinions regarding physiological monitoring
23 technologies. He has explained his technical articles
24 related to this area and his design of pulse oximeters.

25 Masimo would like to have him admitted in the

1 field of physiological monitoring technologies.

2 JUDGE BHATTACHARYYA: I understand that, but
3 you're objecting to that designation.

4 MS. FRAZIER: We are, Your Honor, but happy to
5 take it up on cross-examination.

6 MR. CLAASSEN: Your Honor, I'd ask if he is
7 admitted, they either raise their objection now or -- so
8 that I know how to address it.

9 JUDGE BHATTACHARYYA: Ms. Frazier, are you --

10 MR. CLAASSEN: I'm requesting that they voir dire
11 the witness now if they have a question as to his
12 qualifications.

13 MS. FRAZIER: Again, Your Honor, no objection to
14 Dr. Madisetti being admitted as an expert consistent with
15 description of his background related to signal processing.

16 We do object as to his expertise regarding
17 physiological monitoring devices.

18 JUDGE BHATTACHARYYA: In that case, I believe we
19 have to resolve that. Should we resolve that at this time?

20 MS. FRAZIER: May I voir dire the witness,
21 Your Honor?

22 JUDGE BHATTACHARYYA: Yes, you may.

23 VOIR DIRE EXAMINATION

24 BY MS. FRAZIER:

25 Q. Dr. Madisetti, good morning.

1 A. Good morning.

2 Q. You said that you designed one pulse oximeter,
3 correct?

4 A. Yes, I designed a pulse oximeter.

5 Q. And that work was led by Professor John Scharf
6 and his colleagues at Emory University, correct?

7 A. I collaborated with Professor John Scharf.

8 Q. And you have never written any books about that
9 research, correct?

10 A. It was entered in a prototype, and I did not
11 write -- I don't believe I wrote a book on that topic.

12 Q. And you have never written any papers about that
13 research, correct?

14 A. There were some reports, I believe, but no
15 published papers.

16 Q. And let's see what you said at your deposition,
17 Dr. Madisetti.

18 Mr. Lee, if we could bring up Dr. Madisetti's
19 deposition transcript at page 185, line 11.

20 Question. Did you ever write any books, papers,
21 or articles about that research?

22 Answer. I did not.

23 Dr. Madisetti, were you asked those questions and
24 did you give that answer?

25 A. Yes, that is what I said today. There was a

1 prototype and there were some internal reports.

2 Q. And you have never spoken publicly on that
3 research, correct?

4 A. I made presentations to reviewers.

5 Q. And --

6 MR. CLAASSEN: Your Honor, I'm going to ask if
7 this voir dire is going to contain any sort of reference to
8 his deposition transcript that he be given the entire
9 transcript to review.

10 JUDGE BHATTACHARYYA: He can look at his whole
11 transcript, and you'll also have the opportunity to respond.

12 MR. CLAASSEN: I understand. I'm asking that
13 counsel give him his entire transcript, which they have not
14 done yet.

15 MS. FRAZIER: Your Honor, the transcript is in
16 possession of Masimo's counsel at their offices. We sent
17 them over this morning. I'm happy for the binder to be
18 given to Dr. Madisetti now, if it's in the room.

19 MR. CLAASSEN: Go ahead and open your
20 cross-examination binder, Dr. Madisetti.

21 THE WITNESS: I will.

22 MS. FRAZIER: Your Honor, just a point of
23 clarification. We are on the public record, correct?

24 (Clarification by reporter.)

25 THE WITNESS: I have the binder, counsel.

1 Q. Dr. Madisetti, we'll put up on the screen. It's
2 also at tab 1 of volume 1 of your binders, page 185 of your
3 transcript, lines 14 through 19.

4 Question. Did you speak about that research
5 publicly?

6 Answer. I am not.

7 Were you asked that question, did you give that
8 answer?

9 A. Yes, I did, and I confirmed that today. It was
10 an internal review.

11 Q. And, Dr. Madisetti, the slide you showed a few
12 moments ago of four papers you had written with respect to
13 biological signal monitoring, do you recall those?

14 A. Yes.

15 Q. And if I search those papers, I will not find a
16 reference to pulse oximetry in those, correct?

17 A. I don't know. I would have to look through them,
18 but they deal with biological signals. They deal with
19 different types of signal extraction techniques, noise
20 cancellation, and associated formulation technologies that
21 are applicable to pulse oximetry.

22 Q. And they deal with biological signal extraction,
23 correct?

24 A. Yes. They deal with various kinds of biological
25 signals as well as physical signals.

1 Q. Thank you.

2 MS. FRAZIER: Your Honor, no further questions
3 for Dr. Madisetti. We do maintain our objection. We
4 believe his expertise should be consistent with what he has
5 described, which is expertise in the biological signal
6 monitoring, not physiological monitoring devices.

7 MR. CLAASSEN: Your Honor, I'd like to respond,
8 moving back to slide 4 of Exhibit CDX-11C.

9 By MR. CLAASSEN:

10 Q. Dr. Madisetti, the books that you mentioned on
11 the left side of Exhibit 11 -- CDX-11C, are those all
12 related to signal processing?

13 A. Yes.

14 Q. Are there any books on hardware design?

15 A. Yes, the ones on the bottom left.

16 Q. Can you explain your experience in hardware
17 design to us?

18 A. Yes. I was one of the authors of the Standard
19 Language for Hardware Design, which is called VHDL. This is
20 a IEEE standard. I authored books in the area of chip
21 design, software design, system-on-chip design.

22 I designed several products. The software that
23 I've designed on cell phones is present in millions of
24 phones worldwide. And I have extensive experience in the
25 design of -- and design, research, and teaching of software

1 and hardware --

2 Q. Do you have experience --

3 A. -- signal processing, monitoring, and sensor
4 design.

5 Q. To be clear, you also have experience designing
6 hardware for pulse oximeters; is that correct?

7 A. Yes. I designed using PVDs and in collaboration
8 with Professor Jim Scharf.

9 MR. CLAASSEN: Your Honor, Masimo proffers
10 Dr. Madisetti as an expert in the field of physiological
11 monitoring technologies.

12 JUDGE BHATTACHARYYA: Mr. Claassen, could you
13 just summarize for me your position regarding his experience
14 in physiological monitoring versus biological signal
15 monitoring?

16 MR. CLAASSEN: Yes, Your Honor. If you'd like to
17 focus on pulse oximetry in particular with respect to
18 physiological signal monitoring, we would accept that as an
19 acceptable field for Dr. Madisetti.

20 JUDGE BHATTACHARYYA: Okay. Could you just
21 summarize for me what we've just heard about his experience
22 in pulse oximetry?

23 MR. CLAASSEN: Yes, Your Honor. He has years of
24 experience developing a pulse oximeter and both the hardware
25 and software for that pulse oximeter. Dr. Madisetti is also

1 a well-regarded author with respect to the design of ASIC,
2 which are hardware, so it's hardware and software. He is a
3 signal processing expert. Without question, Apple is not
4 questioning that.

5 So the issue here really is the definition of the
6 field, and I believe it's fair to say that Dr. Madisetti is
7 an expert with respect to physiological monitoring
8 technologies in pulse oximetry in particular.

9 JUDGE BHATTACHARYYA: Ms. Frazier, did you want
10 to respond to Mr. Claassen's argument?

11 MS. FRAZIER: Yes, Your Honor. Again, no
12 objection to admission in the areas that Dr. Madisetti
13 offered himself, including chip design and signal
14 processing, but we do maintain his only pulse oximetry
15 experience that he testified to was that one effort in
16 collaboration with another professor that he never wrote
17 about, never talked about, never published on.

18 So, Your Honor, he has no publications specific
19 to the field of pulse oximetry, so I actually think that the
20 narrower definition here would be even more objectionable to
21 Apple.

22 JUDGE BHATTACHARYYA: Okay. What is your
23 position regarding the proper field? You said chip design
24 and signal processing?

25 MS. FRAZIER: Signal processing, Your Honor, no

1 objection to that.

2 JUDGE BHATTACHARYYA: All right. Thank you.

3 Let's take a quick break.

4 (Whereupon, the proceedings recessed at 11:36
5 a.m.)

6 (In session at 11:38 a.m.)

7 JUDGE BHATTACHARYYA: We're back on the public
8 record.

9 Based on the testimony and arguments I've just
10 heard, the objection is overruled. Dr. Madisetti will be
11 admitted as an expert in the field of physiological
12 monitoring technologies.

13 Counsel for Apple can explore the extent of his
14 expertise on cross-examination.

15 MS. FRAZIER: Thank you, Your Honor.

16 MR. CLAASSEN: Your Honor, I'd like to clarify
17 that the time was charged to Apple with respect to the voir
18 dire and the objection.

19 JUDGE BHATTACHARYYA: I understand the parties
20 have an agreement regarding how to charge time. I ask that
21 the parties discuss it, and, if there's a dispute, you can
22 raise it before me.

23 MR. CLAASSEN: Thank you, Your Honor. We'll do
24 that.

25 BY MR. CLAASSEN:

1 Q. Turning back to CDX-11C, let's turn to slide 3.
2 Dr. Madisetti, what was your assignment in this
3 case?

4 A. Yes. I was asked to study Masimo's '501, '502,
5 '648, and the '745 patents, specifically the asserted claims
6 determining whether Apple's accused products, the watches,
7 infringe the asserted claims, and also determine whether
8 Masimo's DI products practice the asserted DI claims.

9 Q. Turning to the next slide -- turning to slide 6,
10 Dr. Madisetti, how did you arrive at your opinions?

11 A. I reviewed a lot of evidence that was provided to
12 me, and these included the patents themselves, their file
13 histories, which I discuss there. I also reviewed the
14 products themselves. I reviewed the documentation. I
15 reviewed Masimo's DI products as well as the accused Apple
16 products, technical documents that were provided to me,
17 testimony, both deposition as well as in this hearing, and
18 source code that I reviewed, physicals that I examined, and
19 testing that I also performed.

20 Q. Turning to slide 8, Dr. Madisetti, based upon
21 your independent analysis, what is the summary of your
22 opinions in this case regarding infringement and domestic
23 industry technical prong?

24 A. With respect to my opinions, as a summary, it is
25 my opinion that the accused Apple Watch products infringe

1 claim 12 of the '501, claims 22 and 28 of the '502, claims
2 12, 24, and 30 of the '648. And the accused Apple products,
3 the watches, infringe claims 9 and 27 of the '745.

4 It is also my opinion that the Masimo DI products
5 satisfy the Rev. A article, satisfies claim 12 of the '501
6 patent, claims 12, 24, and 30 of the '648 patent. And,
7 further, that Revision D, E, and W1 articles satisfy claim
8 12 of the '501, claim 28 of the '502, claims 12, 24, and 30
9 of the '648.

10 And, further, that Masimo's DI products Circle,
11 Wings, Rev. A, D, E, W1 articles satisfy claim 18 of the
12 '745 patent.

13 Q. Turning back to -- do you expect to render
14 opinions later in this case, if necessary, regarding the
15 validity of Masimo's Asserted Patents?

16 A. Yes, sir.

17 Q. Turning back to slide 7, did you review any
18 stipulations between the parties that are relevant to your
19 opinions in this case?

20 A. Yes. I understand that the parties have
21 stipulated that Series 6, 7, and the Next Generation watches
22 all behave in the same manner, with respect to the relevant
23 features at issue.

24 So, therefore, my opinions with respect to any of
25 these products would apply to all of these products.

1 MR. CLAASSEN: Your Honor, we're going to be
2 moving into some information that is Apple CBI. I'd like to
3 move onto the Apple confidential CBI record.

4 (Whereupon, the hearing proceeded in confidential
5 session.)

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3 CROSS-EXAMINATION

4 BY MS. FRAZIER:

5 Q. Dr. Madisetti, during your testimony for
6 Mr. Claassen, you've been reviewing the slides on the screen
7 in front of you; is that correct?

8 A. Yes.

9 Q. And we will continue to put information up on the
10 screen. There is also some information that we've provided
11 hard copies of also.

12 Do you have those binders available to you?

13 A. Yes, I see one binder. I see two binders.

14 Q. Two binders, that's correct.

15 Now, Dr. Madisetti, the parties are on a time
16 clock here, so I'd ask you to answer my questions yes, no,
17 or I don't know. Do you understand?

18 A. Yes.

19 Q. You have worked as an expert litigation witness
20 over 50 times, correct?

21 A. Yes, over the past 15, 20 years.

22 Q. You have had your deposition taken at least 80
23 times, correct?

24 A. Yes.

25 Q. You have testified at trial roughly 30 times?

1 A. I don't remember the number, but I've testified
2 probably that many times.

3 Q. Probably roughly 30 times?

4 A. Yes.

5 Q. You have served as a technical expert in cases
6 involving 4G LTE protocols; is that right?

7 A. Yes.

8 Q. You have served as a technical expert in cases
9 where the technology at issue was power over Ethernet,
10 correct?

11 A. Yes.

12 Q. You've served as a technical expert in cases
13 regarding networked storage devices?

14 A. I'm not sure what you mean but probably.

15 Q. Well, let's take a look at your CV,
16 Dr. Madisetti. We'll put it up on the screen. It is
17 CX-329, Exhibit A, page 2. And if we could zoom in on the
18 IOEngine v. IMC/Imation.

19 A. Yes.

20 Q. Do you see you've served as a technical expert
21 regarding networked storage devices, correct?

22 A. Yes.

23 Q. You've served as a technical expert regarding
24 digital videos, correct?

25 A. Yes.

1 Q. You've served as a technical expert regarding
2 interactive graphical user interface technology, right?

3 A. Yes.

4 Q. You are currently serving as an expert in a case
5 regarding virtualization, correct?

6 A. Cloud computing, yes.

7 Q. Virtualization, correct?

8 A. Yes.

9 Q. Now I'd like to turn to your opinions regarding
10 Apple's alleged infringement of the --

11 A. One second. Excuse me. One second, counsel.

12 MR. CLAASSEN: I'm sorry. I have to go into the
13 witness room for counsel. Masimo has lost internet
14 connection. We need to break until we're able to rejoin.

15 MS. FRAZIER: I'd ask that we go off the record
16 during this technical break.

17 JUDGE BHATTACHARYYA: That's fine. Off the
18 record.

19 (At which time, the proceedings were off the
20 record.)

21 JUDGE BHATTACHARYYA: Let's take a five-minute
22 break.

23 (Whereupon, the proceedings recessed at 3:04
24 p.m.)

25 (In session at 3:10 p.m.)

1 MS. FRAZIER: May I proceed, Your Honor?

2 JUDGE BHATTACHARYYA: Yes, let's go back on the
3 record. We are on the public record.

4 You may proceed.

5 BY MS. FRAZIER:

6 Q. Dr. Madisetti, I'd like to turn now to your
7 opinions regarding Apple's alleged infringement of the '745
8 patent. Do you have that in mind?

9 A. Yes.

10 Q. You heard yesterday the testimony of Mr. Al-Ali,
11 correct?

12 A. Yes.

13 Q. And you heard Mr. Al-Ali testify that shaping the
14 light was what was new about his patent, correct?

15 A. Could you please repeat the question, counsel?

16 Q. Sure. Yes, no, or you don't remember, you heard
17 Mr. Al-Ali testify yesterday that shaping the light was what
18 was new about the '745 patent, correct?

19 A. I heard Mr. Al-Ali say that.

20 Q. And you've reviewed Mr. Al-Ali's deposition in
21 this case, correct?

22 A. I reviewed his deposition, yes.

23 Q. And Mr. Al-Ali has also acknowledged that
24 physiological measurement systems with diffuser that are
25 configured to spread light existed before the '745 patent,

1 correct?

2 A. I don't recall that testimony.

3 Q. Sure. Let me see if I can refresh your
4 recollection.

5 If we could bring up Mr. Al-Ali's February 16th
6 deposition on page 56.

7 Dr. Madisetti, this one is not in your binder.

8 Line 13 through 18. Mr. Al-Ali was asked:

9 Would you agree that physiological measurement
10 systems with --

11 MR. CLAASSEN: Your Honor, I think Masimo counsel
12 might have lost connection again.

13 I can hear, Your Honor.

14 JUDGE BHATTACHARYYA: Please go ahead. We have
15 Masimo counsel here.

16 MR. CLAASSEN: Yes, Your Honor.

17 BY MS. FRAZIER:

18 Q. Mr. Al-Ali was asked:

19 Question. Would you agree that physiological
20 measurement systems with diffusers configured to receive
21 emitted light spread received light and emit the spread
22 light over a larger tissue area existed before the '745
23 patent?

24 Answer. Yes.

25 Does that refresh your recollection that

1 Dr. Al-Ali testified that physiological measurement systems
2 with diffusers configured to receive emit light and spread
3 light over larger tissue areas existed before the '745
4 patent?

5 MR. CLAASSEN: Your Honor, I ask that the witness
6 be shown the entirety of at least this page of the
7 transcript. This is not his own testimony. It's not
8 impeachment. So I'd like him to be able to review the
9 content.

10 MS. FRAZIER: We're happy to zoom out.

11 MR. CLAASSEN: Please.

12 Q. Dr. Madisetti, does that refresh your
13 recollection that Mr. Al-Ali said that?

14 A. As I said, Mr. Al-Ali speaks for Mr. Al-Ali
15 speaks for himself. These are not my opinions.

16 Q. And do you agree or disagree that physiological
17 measurement systems with diffusers configured to spread
18 light over a larger tissue area existed before the '745
19 patent?

20 A. As I described in my deposition, they don't -- in
21 my opinion they did not exist in the claimed manner.

22 Q. Sir, stick with my question, if you could. I'm
23 not asking about the claimed manner. I'm just asking
24 whether you agree or disagree that physiological measurement
25 systems with emitters -- excuse me -- with diffusers

1 configured to receive light and spread that light over a
2 larger tissue area existed before the '745 patent, do you
3 agree or disagree?

4 MR. CLAASSEN: Your Honor, I'm going to object.
5 This is outside the scope of the direct.

6 A. I can't answer it without knowing the context.

7 JUDGE BHATTACHARYYA: Let's pause for a minute.
8 I'd like Ms. Frazier to respond to the objection.

9 MS. FRAZIER: Your Honor, this goes to
10 Dr. Madisetti's opinions regarding infringement of the '745
11 patent. It's squarely within the scope of his direct.

12 MR. CLAASSEN: Your Honor, these questions are
13 directed to validity issues.

14 JUDGE BHATTACHARYYA: It does sound like you're
15 asking a validity question. Can you link it to something --

16 MS. FRAZIER: Sure, Your Honor, I'll move on.

17 JUDGE BHATTACHARYYA: In that case the objection
18 is sustained.

19 BY MS. FRAZIER:

20 Q. Dr. Madisetti, we're going to put up on the
21 screen claims 1 and 20. These are the claims from which
22 claims 9 and 27 depend.

23 Those are the claims that you've alleged Apple
24 Watch Series 6 and 7 infringe, correct?

25 A. Counsel, could you please tell me which patent

1 claim is this from?

2 Q. Yes. This is the '745 patent. On the left side
3 of the screen we've put independent claim 1 and on the right
4 side of the screen we've put independent claim 20.

5 You recognize those claims, sir, correct?

6 A. Yes.

7 Q. And they are the independent claims from which
8 claims 9 and 27 depend, correct?

9 A. Yes.

10 Q. Okay. Now both claim 9 and claim 27 of the '745
11 patent require a plurality of light-emitting diodes
12 configured to emit light in a first shape. Do you see that?

13 And if we could highlight it on the screen.

14 A. Yes, I agree, that that's a limitation of claim 1
15 and claim 20 with respect to that limitation.

16 Q. And claims 1 and 20 also require a material
17 configured to be positioned between the plurality of
18 light-emitting diodes and tissue on a wrist of a user, the
19 material configured to change the first shape into a second
20 shape, correct?

21 A. Again, I don't -- I mean, I will agree with you
22 that you are reading from the claim limitation.

23 Q. And the '745 patent uses the term shape to refer
24 to geometric shape, such as a rectangular, circle, or
25 square, correct?

1 A. I disagree. It just calls it a shape.

2 Q. Dr. Madisetti, let's see what you said in your
3 claim construction report in this case.

4 If we could bring up Dr. Madisetti's claim
5 construction report at paragraph 60.

6 MR. CLAASSEN: Is this in his binders so he can
7 follow along?

8 MS. FRAZIER: It's at tab 7 of his binder.

9 Q. Dr. Madisetti, do you see there in the second
10 sentence you wrote:

11 The specification uses the term shape to refer to
12 patterns and geometry (such as rectangular, circle, or
13 square).

14 Do you see that?

15 A. I see that. These are non-limiting embodiments.

16 Q. Now the '745 patent provides examples of shapes,
17 including shapes that are substantially rectangular,
18 correct?

19 A. You would have to point me to the sections,
20 counsel.

21 Q. You don't recall if the patent refers to shapes
22 that are substantially rectangular?

23 A. Again, please show me the relevant section
24 because I would like to be very precise.

25 Q. Dr. Madisetti, is it your position that the

1 shapes described by the '745 patent must be perfect
2 geometric shapes?

3 A. I don't have an opinion on that issue beyond
4 what's in the claim itself.

5 Q. Now the term second shape, as used in the claims
6 of the '745 patent, means a shape that is different than the
7 first shape, correct?

8 A. Again, we have to refer to the claim
9 constructions of both parties and the claim language itself,
10 so I'm unsure. You're referring to the claim or to the
11 claim construction positions, counsel?

12 Q. Dr. Madisetti, you've offered an opinion that
13 Apple infringes the '745 patent, correct?

14 A. Yes.

15 Q. And you've offered the opinion that the MLA in
16 the Apple Watch changes the light from a first shape to a
17 second shape, correct?

18 A. Again, that's one of the reasons, and I've
19 provided analysis and testing support for that limitation.

20 Q. And you can agree that second shape as you
21 applied it for purposes of your infringement analysis means
22 a shape that is different from a first shape, correct?

23 A. I've applied both constructions.

24 Q. And we can agree that both constructions define a
25 second shape as a shape different than the first shape,

1 correct?

2 A. Can I look at the constructions for both parties
3 just to make sure that I'm precise?

4 Q. Do you know sitting here today if this definition
5 of second shape that you applied means a shape that is
6 different than the first shape?

7 A. I understand that -- I understand how I applied
8 it, counsel. I understand that I've also used the term's
9 plain and ordinary meaning and used a parentheses, so I want
10 to be very precise.

11 Q. If you could just stick with my questions.

12 Second shape, as used in the claims of the '745
13 patent, your understanding is that encompasses a shape that
14 is different from the first shape, correct? Yes or no?

15 A. All I can say is that it is as required in the
16 claim.

17 Q. Okay. Now, Dr. Madisetti, a second shape in the
18 '745 patent is not different from the first shape if it
19 differs only in size, correct?

20 A. I understand that's the construction that -- or
21 similar language has been proposed by Masimo, and it's part
22 of the file history.

23 Q. Sir, for purposes of your analysis, you
24 understood that second shape is not different from a first
25 shape if it is different only in size, correct?

1 A. Counsel, I applied both parties' constructions.

2 Q. Can you answer my question yes or no, sir?

3 A. Would you repeat your question, counsel? I
4 applied both parties' construction, counsel, so --

5 Q. And so in your application you understood that a
6 second shape is not different from a first shape, if it is
7 different only in size, correct?

8 A. I applied the construction of both parties.

9 Q. Can you answer my question yes or no?

10 A. As I said, this question can't have a yes or no
11 answer.

12 Q. Okay. Dr. Madisetti, that's all you have to say.

13 Now you testified that in the Apple Watch the
14 microlens array is the thing that is configured to change
15 the first shape into a second shape, correct?

16 A. Would you point me to something specific as to
17 what you're referring to?

18 Q. So, sir, you do not know sitting here today if it
19 is your opinion that the microlens array is the material
20 configured to change the first shape into a second shape in
21 your analysis?

22 A. That is the opinion that I -- that is part of my
23 opinion, yes.

24 Q. Okay. So you have testified to that, correct?

25 A. Yes.

1 Q. And in your opinion, in your analysis of the
2 Apple Watch, the first shape is like a square and the second
3 shape is circular, correct?

4 A. At a high level, yes, but the focus was on the
5 shapes are different.

6 Q. Well, let's see what you said at your deposition.
7 It's in tab 1 of your binder. We'll bring it up on the
8 screen.

9 This is page 288, beginning at line 13 going on
10 to page 289, line 3.

11 Question. You performed various tests that
12 attempted to take pictures of light as it exited the MLA.
13 Correct?

14 Answer. I did not attempt. These were actual
15 pictures.

16 Question. And did those pictures show the shape
17 of light?

18 Answer. Referring to my appendix, as I describe
19 in my appendix, Appendix H, how -- what the first shape and
20 the second shape are, and how they are different.

21 The first shape is like a square, and the second
22 shape is circular.

23 Were you asked those questions and did you give
24 those answers?

25 A. Yes, that's what I said right now.

1 MS. FRAZIER: Your Honor, I'd like to go on the
2 Apple confidential record, please.

3 JUDGE BHATTACHARYYA: We're moving to the Apple
4 confidential record.

5 (Whereupon, the hearing proceeded in confidential
6 session.)

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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: Good afternoon,

4 Dr. Venugopal.

5 THE WITNESS: Good afternoon.

6 JUDGE BHATTACHARYYA: I'm sorry. I hopefully

7 will get your name correct next time.

8 THE WITNESS: No worries. No worries.

9 JUDGE BHATTACHARYYA: Do you understand that you
10 are under an obligation to tell the truth here today?

11 THE WITNESS: Yes, I am.

12 VIVEK VENUGOPAL,

13 having been first duly sworn and/or affirmed
14 on his oath, was thereafter examined and testified as
15 follows:

16 DIRECT EXAMINATION

17 BY MS. FRAZIER:

18 Q. Good afternoon. Could you please introduce
19 yourself to Her Honor?

20 A. Good afternoon. My name is Vivek Venugopal. I
21 live in Sunnyvale, California, and I'm an optical engineer
22 with Apple.

23 Q. Could you please describe your educational
24 background?

25 A. Yes, of course. I have a master's in electrical

1 engineering from Rensselaer Polytechnic Institute and a
2 Ph.D. in biomedical engineering from the same.

3 Q. When did you receive your Ph.D.?

4 A. That was in December of 2011.

5 Q. What did you do after that?

6 A. I was working as a postdoctoral researcher for a
7 couple of years with Harvard Medical School at the medical
8 center in Boston.

9 Q. And when did you join Apple?

10 A. That would be in January of 2014.

11 Q. Since joining Apple, what products have you
12 worked on?

13 A. I have worked on all of the Apple Watches
14 exclusively, Series 0 through Series 7.

15 Q. And what is your particular focus with respect to
16 the Apple Watch?

17 A. I work on the optical architecture of the heart
18 rate monitors, the optical sensors which are used for heart
19 rate monitoring.

20 Q. How many different optical sensors are there
21 across the Apple Watch Series 0 through 7?

22 A. The resting heart rate on the health sensor, in
23 addition to that we also have ambient light sensors and
24 others, which I'm not involved with.

25 Q. Now has the design of the optical sensor in the

1 Apple Watch changed over time?

2 A. Yes, it has. There have been three distinct
3 generations of optical designs in the Apple Watch. The
4 first one -- we call them Generation 1 through 3.

5 Q. And could you explain for Her Honor which
6 generations map to which series watch?

7 A. Of course. Gen 1 was for Series 0 through Series
8 3, Generation 2 was Series 4 and 5, and Gen 3 is Series 6
9 and 7.

10 Q. Starting, Dr. Venugopal, with the Series 6, when
11 did Apple first sell Apple Watch Series 0, excuse me,
12 starting with Series 0, when did Apple first sell Apple
13 Watch Series 0?

14 A. The first customer ship for Series 0 was in April
15 of 2015.

16 Q. What was your role with respect to the optical
17 sensor in the Series 0 watch?

18 A. When I started, I was brought in to work on the
19 Fresnel lens, specifically writing documentation and
20 specifications that can be used by vendors to design and
21 develop the lens. Subsequently I was also involved in
22 testing.

23 Q. And is the Fresnel lens part of the optical
24 sensor?

25 A. Yes, it is.

1 Q. What are the other parts of the optical sensor in
2 Apple Watch Series 0?

3 A. Series 0 comprises of LEDs, green and infrared
4 LED, and two photodiodes, and there is also, as I said, the
5 Fresnel lenses, and we have the back crystal, which is
6 essentially the back housing of the watch, which is an
7 optical component as well.

8 Q. I'd like to put up on the screen what's been
9 marked as RX-0392.

10 Do you recognize RX-0392?

11 A. Yes, I do.

12 Q. What is it?

13 A. This is an Engineering Requirement Specification
14 or an ERS for one of the features using the optical sensor.

15 MS. FRAZIER: Your Honor, if we could at this
16 time go on the Apple confidential record.

17 (Whereupon, the hearing proceeded in confidential
18 session.)

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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: Good afternoon, Dr. Mehra.

4 THE WITNESS: Good afternoon.

5 JUDGE BHATTACHARYYA: Could you please pronounce
6 your name?

7 THE WITNESS: Saahil Mehra, Saahil, yes.

8 JUDGE BHATTACHARYYA: Welcome. Do you understand
9 that you're under an obligation to tell the truth in your
10 testimony today?

11 THE WITNESS: Yes, I do.

12 SAAHIL MEHRA,

13 having been first duly sworn and/or affirmed
14 on his oath, was thereafter examined and testified as
15 follows:

16 MR. SELWYN: May I proceed, Your Honor?

17 JUDGE BHATTACHARYYA: Yes, please, go ahead.

18 DIRECT EXAMINATION

19 BY MR. SELWYN:

20 Q. Good afternoon. Could you please introduce
21 yourself, tell us where you work and a little bit about
22 yourself, please?

23 A. Sure. My name is Saahil Mehra, and I work at
24 Apple. I live in Boston with my wife and my two-year-old.

25 Q. What is your current position at Apple?

1 A. Currently I lead and I manage the mechanical
2 engineering or product design team that's responsible for
3 design, development, and validation of the health sensors
4 for Apple's products.

5 Q. What is your educational background, sir?

6 A. I have a Bachelor's in material science and
7 engineering from MIT in 2008, a Master's and a Ph.D. in
8 material science and engineering from Stanford in 2010 and
9 2014, and a certificate in biomedical engineering from
10 Stanford in 2019.

11 Q. When did you join Apple?

12 A. I joined Apple directly after my Ph.D. in late
13 2014.

14 Q. At a high level, what work have you done on Apple
15 Watch?

16 A. At a high level, I've been deeply involved in all
17 aspects of the product development for R&D life cycle for
18 health sensor features for the Apple Watch, including the
19 electrocardiogram and all of the optical health sensors,
20 which are the heart rate sensor, the pulse oximetry feature,
21 and also the optical proximity sensors.

22 Q. Which versions of Apple Watch has your work
23 related to?

24 A. I have been deeply involved with Apple Watch
25 design and development since the Series 4 onwards.

1 Q. When did you begin working on the blood oxygen
2 feature of Apple Watch Series 6?

3 A. I joined the team around mid 2018 after the early
4 prototyping feasibility had been established, and they were
5 looking for my expertise to help integrate this feature into
6 a system in the Apple Watch.

7 Q. Did your work on the blood oxygen feature for
8 Apple Watch have anything to do with the work that you had
9 done on the heart sensor?

10 A. Yes, very much so. So pulse oximetry as a
11 feature is essentially heart rate sensing, but comparing the
12 amplitude of the signal at two different colors of light or
13 wavelengths of light.

14 And so all of the work that we did to design,
15 develop, and validate heart rate sensors over multiple
16 generations of the watch was a great engineering base for us
17 to build off of.

18 MR. SELWYN: Your Honor, could we go on the Apple
19 confidential record.

20 (Whereupon, the hearing proceeded in confidential
21 session.)

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1	C O N T E N T S			
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1 C E R T I F I C A T E

2 TITLE: CERTAIN LIGHT-BASED PHYSIOLOGICAL MEASUREMENT DEVICES
3 AND COMPONENTS THEREOF

4 INVESTIGATION NO.: 337-TA-1276

5 HEARING DATE: June 8, 2022

6 LOCATION: Washington, D.C. - Remote

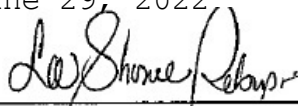
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10 Date: June 29, 2022

11 Signed:

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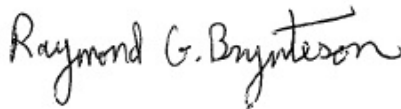
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15 the proceedings of the U.S. International Trade Commission
against the aforementioned court reporter's notes and
16 recordings for accuracy in transcription in the spelling,
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17 foregoing/attached transcript is a true, correct and
complete transcription of the proceedings.

18 Signed:

19 ss//



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Commission and caused to be prepared from my record media
22 and notes of the proceedings a true, correct and complete
verbatim recording of the proceedings.

23 Signed:

24 ss//



25

UNITED STATES INTERNATIONAL TRADE COMMISSION

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In the Matter of

Investigation No.

CERTAIN LIGHT-BASED PHYSIOLOGICAL 337-TA-1276

MEASUREMENT DEVICES AND COMPONENTS

THEREOF

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OPEN SESSIONS

Pages: 862 through 1167 (with excerpts)

Place: Washington, D.C.

Date: June 9, 2022

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1 UNITED STATES INTERNATIONAL TRADE COMMISSION

2 Washington, D.C.

3 Before the Honorable Monica Bhattacharyya

4 Administrative Law Judge

5

6 -----x

7 In the Matter of Investigation No.

8

9 CERTAIN LIGHT-BASED PHYSIOLOGICAL 337-TA-1276

10 MEASUREMENT DEVICES AND COMPONENTS

11 THEREOF

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15 EVIDENTIARY HEARING

16 Thursday, June 9, 2022

17 Volume IV

18

19

20 The parties met via remote videoconferencing
21 pursuant to notice of the Administrative Law Judge at 9:30
22 a.m. Eastern.

23

24

25 Reported by: Linda S. Kinkade RDR CRR RMR RPR CSR

1 A P P E A R A N C E S:

2 [All parties appeared via remote videoconferencing and/or
3 telephonically.]

4

5 Counsel for Complainants Masimo Corporation and Cercacor
6 Laboratories, Inc.:

7 KNOBBE, MARTENS, OLSON & BEAR, LLP

8 2040 Main Street, Fourteenth Floor

9 Irvine, California 92614

10 (949) 760-0404

11 Stephen C. Jensen, Esq.

12 Joseph R. Re, Esq.

13 Sheila N. Swaroop, Esq.

14 Ted M. Cannon, Esq.

15 Kendall M. Loebbaka, Esq.

16 Douglas B. Wentzel, Esq.

17 Irfan A. Lateef, Esq.

18 Brian C. Claassen, Esq.

19 Daniel C. Kiang, Esq.

20 Douglas B. Wentzel, Esq.

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Complainants Masimo Corporation and Cercacor

4 Laboratories, Inc.:

5 KNOBBE, MARTENS, OLSON & BEAR, LLP

6 1717 Pennsylvania Avenue, NW, Suite 900

7 Washington, DC 20006

8 (202) 640-6400

9 Jonathan E. Bachand, Esq.

10

11 KNOBBE, MARTENS, OLSON & BEAR, LLP

12 925 4th Avenue, Suite 2500

13 Seattle, Washington 98104

14 (206) 405-2000

15 Carol Pitzel Cruz, Esq.

16

17

18

19

20

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 1875 Pennsylvania Avenue, NW

6 Washington, DC 20006

7 (202) 663-6000

8 Michael D. Esch, Esq.

9 David L. Cavanaugh, Esq.

10

11 WILMER CUTLER PICKERING HALE AND DORR LLP

12 2600 El Camino Real, Suite 400

13 Palo Alto, California 94306

14 (650) 858-6000

15 Mark D. Selwyn, Esq.

16

17

18

19

20

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 60 State Street

6 Boston, Massachusetts 02109

7 (617) 526-6000

8 Joseph J. Mueller, Esq.

9 Richard Goldenberg, Esq.

10 Sarah R. Frazier, Esq.

11 Jonathan A. Cox, Esq.

12 Nina Garcia, Esq.

13 Cynthia D. Vreeland, Esq.

14

15

16 WILMER CUTLER PICKERING HALE AND DORR LLP

17 1225 17th Street, Suite 2600

18 Denver, Colorado 80202

19 (720) 598-3459

20 Ravi S. Deol, Esq.

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 350 South Grand Avenue, Suite 2400

6 Los Angeles, California 90071

7 (213) 443-5300

8 Derek Gosma, Esq.

9

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17 *** Index appears at end of transcript ***

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1 P R O C E E D I N G S

2 (In session at 9:30 a.m.)

3 JUDGE BHATTACHARYYA: We'll start on the public
4 record. I believe there's some housekeeping matters to take
5 care of. Shall we begin with the admission of exhibits?

6 MS. SWAROOP: Yes. Good morning, Your Honor,
7 Sheila Swaroop for Complainants.

8 I believe we have two lists from two days ago,
9 and then I believe we have agreement on the list from today
10 as well for the admitted exhibits.

11 JUDGE BHATTACHARYYA: All right. So I have one
12 entitled Complainants' Corrected Table of Admitted Exhibits
13 for the Evidentiary Hearing on June 7th, 2022.

14 Beyond the objections that have already been
15 ruled upon, are there any further objections from Apple?

16 MR. MUELLER: The one thing, Your Honor, and this
17 may be addressed in the version that you're looking at, and,
18 if it is, it's a moot point, but I think in one version of
19 the table there had been some demonstratives listed.

20 We have no objection to the demonstratives being
21 lodged with Your Honor, but we believe, as a formal matter,
22 they are not exhibits.

23 MS. SWAROOP: Mr. Mueller, we addressed that. We
24 prepared two separate lists of exhibits, so there's a list
25 of admitted exhibits and there's a separate list of

1 demonstrative exhibits, which we sent to you and your team
2 yesterday. We're in agreement on that.

3 MR. MUELLER: Then it's a moot point. Thank you.

4 MS. SWAROOP: Thank you.

5 JUDGE BHATTACHARYYA: All right. There's one
6 item on this corrected table that we discussed yesterday, I
7 believe with Mr. Claassen. It has to do with whether the
8 physical sent to the ALJ, CPX-156C, will be listed as an
9 exhibit.

10 My understanding was that would not be a physical
11 exhibit; the photo would stay in --

12 MS. SWAROOP: My apologies. You're correct,
13 Your Honor. If that was included, we'll resubmit again and
14 remove CPX-156 and make sure CPX-156A is on instead.

15 JUDGE BHATTACHARYYA: There is no need to do
16 that. I'll admit this list of exhibits that's entitled
17 Complainants' Corrected Table of Admitted Exhibits for the
18 Evidentiary Hearing on June 7th, 2022, with the exception of
19 CPX-156C, physical A, sent to ALJ.

20 Could you please send the list to the court
21 reporter and cross out that particular entry.

22 (Whereupon, the exhibits as recited by counsel
23 and reflected in the attached index were submitted and
24 received in evidence.)

25 MS. SWAROOP: We will do that, Your Honor. Thank

1 you.

2 JUDGE BHATTACHARYYA: Then I have Complainants'
3 Table of Demonstratives for Evidentiary Hearing on June 6th
4 and June 7th, 2022.

5 Are there any objections to receiving those
6 demonstratives as demonstrative exhibits, not as substantive
7 evidence?

8 MR. MUELLER: No objection, Your Honor.

9 JUDGE BHATTACHARYYA: So those demonstratives
10 will be received.

11 (Whereupon, the exhibits as recited by counsel
12 and reflected in the attached index were submitted and
13 received in evidence.)

14 JUDGE BHATTACHARYYA: Then I have a list entitled
15 Table of Admitted Exhibits for the Evidentiary Hearing on
16 June 8th, 2022.

17 Are there any objections to that table of
18 exhibits other than objections that have already been ruled
19 upon?

20 MR. MUELLER: No further objections, Your Honor.

21 JUDGE BHATTACHARYYA: Then the list of exhibits
22 in that table are admitted. Please send a copy to the court
23 reporter.

24 (Whereupon, the exhibits as recited by counsel
25 and reflected in the attached index were submitted and

1 received in evidence.)

2 MS. SWAROOP: We will do that, Your Honor. Thank
3 you.

4 JUDGE BHATTACHARYYA: Okay. Thank you.

5 Anything further before we begin with the
6 witness?

7 MR. MUELLER: Briefly, Your Honor. The other
8 issue, which we emailed chambers about shortly before the
9 hearing, we continue to have concerns about the time
10 allocation. We're not asking for a ruling right now. We
11 don't want to --

12 MS. SWAROOP: Your Honor, we would like to get
13 started because --

14 MR. MUELLER: If I could please finish my
15 sentence.

16 At the end of the day yesterday Ms. Swaroop said
17 that I had wildly or significantly overstated the time in
18 balance when I said it was three and a half hours more
19 consumed by Masimo.

20 We checked. It was actually three hours and 30
21 minutes, which is precisely what I said.

22 There's two problems that have emerged. Number
23 one, apparently Masimo did not track time on Monday in a
24 granular fashion, objection by objection, witness by
25 witness. We did. We provided those numbers each day to

1 Masimo. They haven't accepted our numbers for Monday
2 despite apparently not doing what we did.

3 The second thing, on meet and confers, they have
4 raised arguments about allocation that we think are
5 incorrect. We're not going to raise them with Your Honor
6 right now. We're going to continue to try to meet and
7 confer about this.

8 I raise it now, Your Honor, because, as I said at
9 the end of the day yesterday, we will not be able to achieve
10 a 50-50 split of the time for the week unless Masimo
11 confines its cross-examinations to make them quite short.
12 And it's hard for us to see how a rebuttal case on
13 invalidity is possible. It's, of course, up to them how
14 they choose to allocate their time, and I won't -- I won't
15 do their job for them.

16 But I do think the concerns are significant
17 enough that at the end of the day we may need to raise it
18 again with Your Honor, and perhaps at that time request some
19 rulings.

20 Right now I'm not requesting anything specific,
21 but I am previewing that we continue to have very
22 significant concerns about the consumption of time. Even
23 without tracking, Your Honor, you have been here, of course,
24 every day to observe the hearing, it's pretty clear Masimo
25 has taken far more time than we have, and at some point that

1 needs to change to achieve a 50-50 split.

2 MS. SWAROOP: Your Honor, the grandstanding that
3 we hear every day from Mr. Mueller is one of the reasons why
4 some of these proceedings are taking so long.

5 We are ready to begin. Mr. Mueller has no
6 requests for you, yet we're continuing to hear from him. So
7 we're prepared to begin with our witnesses and conduct the
8 hearing.

9 JUDGE BHATTACHARYYA: One question right now.
10 What are the parties' estimates as to how much time each
11 party has left?

12 MR. MUELLER: Your Honor, our best estimate is
13 that they have three and three quarters hours. We have
14 seven and one quarter hour, which is three and a half hours
15 more than they have, because they have used three and a half
16 hours more than we have.

17 I'll let my statements for the week stand for
18 themselves. They're not grandstanding.

19 JUDGE BHATTACHARYYA: Ms. Swaroop, do you have an
20 estimate of how much time Masimo has left?

21 MS. SWAROOP: Masimo has left, I think we -- we
22 have calculated that I think we have spent two hours and 45
23 minutes more than Apple at this point in time. Our original
24 estimate, I think, was at the end of our Masimo witnesses we
25 would be at two hours and 30 minutes more than Apple, which

1 makes sense, since we are presenting our direct case on a
2 number of issues that Apple refused to stipulate to.

3 The balance, which we informed Apple yesterday,
4 is that during today's presentation, when their witnesses
5 are going, they are going to spend way more time than we do.

6 So we think to it makes sense to revisit this at
7 the end of the day, see where we're at, and we can have a
8 discussion at this point.

9 JUDGE BHATTACHARYYA: You don't have an estimate
10 right now as to how much time Masimo has left? I
11 understand -- if you don't know, that's fine.

12 MS. SWAROOP: Thank you, Your Honor. We'll work
13 on getting that number. We've been working on how much time
14 we have and the spread -- as to what the spread we had
15 originally projected, and we are in line with that.

16 JUDGE BHATTACHARYYA: Okay. Let's go ahead with
17 the witness.

18 MR. MUELLER: Thank you, Your Honor. We'll
19 resume with Dr. Mehra, please.

20 SAAHIL MEHRA,
21 having been previously duly sworn and/or
22 affirmed on his oath, was thereafter examined and testified
23 further as follows:

24 MR. SELWYN: Your Honor, may we begin on the
25 Apple confidential record, please.

1 JUDGE BHATTACHARYYA: Yes.
2 (Whereupon, the hearing proceeded in confidential
3 session.)
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3 MR. MUELLER: Your Honor, as our next witness we
4 call Dr. Ueyn Block, and Ms. Frazier will do the
5 examination.

6 MS. FRAZIER: Dr. Mehra, assuming it's okay with
7 Her Honor, you are free to go.

8 JUDGE BHATTACHARYYA: Yes. Thank you for your
9 time.

10 THE WITNESS: Thanks. Sounds good.

11 JUDGE BHATTACHARYYA: Good morning, Dr. Block.

12 THE WITNESS: Good morning.

13 JUDGE BHATTACHARYYA: Do you understand that you
14 have an obligation to tell the truth here today?

15 THE WITNESS: Yes.

16 UEYN BLOCK,

17 having been first duly sworn and/or affirmed
18 on his oath, was thereafter examined and testified as
19 follows:

20 JUDGE BHATTACHARYYA: Thank you.

21 You may proceed.

22 DIRECT EXAMINATION

23 BY MS. FRAZIER:

24 Q. Good morning, Dr. Block.

25 A. Good morning.

1 Q. Could you please introduce yourself to Her Honor?

2 A. Absolutely. My name is Ueyn Block, and I work at
3 Apple.

4 Q. What is your educational background?

5 A. I have a Bachelor's degree in physics and
6 mathematics and then got a Master's and a Ph.D. degree in
7 applied physics at Stanford University.

8 Q. What did you do after you defended your
9 dissertation at Stanford?

10 A. I went from Stanford to a startup company working
11 on noninvasive biomedical optics devices and stayed there
12 for about six years.

13 Q. And after that what did you do?

14 A. I pursued a job at Apple and went directly from
15 that company to Apple.

16 Q. When did you join Apple?

17 A. I joined Apple in March of 2013.

18 Q. Why were you interested in working at Apple?

19 A. Basically I've been a longtime appreciator of the
20 company since using products dating back all the way to the
21 '80s, and for me it was some kind of a dream job. I had
22 actually tried to get a job there straight out of graduate
23 school but didn't have the right qualifications at that
24 time, so I eventually got there.

25 Q. Dr. Block, what products have you worked on

1 during your time at Apple?

2 A. Primarily the Apple Watch since I first joined.

3 Q. Which versions of Apple Watch have you worked on?

4 A. All of them.

5 Q. Starting with the first Apple Watch, if I refer
6 to that as the Series 0, will you understand what I'm
7 talking about?

8 A. Yes.

9 Q. What were your responsibilities with respect to
10 the Series 0 Apple Watch?

11 A. When I started, we were at very early stages of
12 doing R&D and prototyping, and I was primarily working on
13 the overall optical architecture of the health sensors for
14 the Series 0 Apple Watch.

15 Q. And at a high level, what are the components that
16 are part of the optical sensors in Apple Watch Series 0?

17 A. Components such as the LEDs and photodiodes, the
18 windows and apertures in the back crystal, how they are all
19 arranged and how we create the overall optical architecture.

20 Q. Now, Dr. Block, next to you in the room is what
21 has been marked as RPX-5.

22 Do you see that?

23 A. Yes.

24 Q. Could you tell us what RPX-5 is? And if you
25 don't mind just holding it up.

1 A. So it's an enclosed Series 0 Apple Watch.

2 Q. And what -- excuse me. Strike that.

3 You referred to the back crystal a moment ago.

4 Using RPX-5, could you show Her Honor what the back crystal
5 on the Series 0 is?

6 A. Sure. So on the back of the watch, the watch has
7 this metal housing, the front has a display, on the rear
8 side there's a circular protruding dome, I'm going to try to
9 hold it close, that sticks out of the metal housing. This
10 circular dome is what we refer to as the back crystal on the
11 Series 0.

12 MS. FRAZIER: Your Honor, at this point I'd like
13 to go on the Apple confidential record.

14 (Whereupon, the hearing proceeded in confidential
15 session.)

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3 MR. MUELLER: Your Honor, for our next witness we
4 call Dr. Steve Waydo, and Ms. Garcia will do the
5 examination, Nina Garcia.

6 MS. GARCIA: Good morning, Your Honor. Nina
7 Garcia for Respondent Apple.

8 JUDGE BHATTACHARYYA: Good morning, Dr. Waydo. I
9 believe you're on mute.

10 THE WITNESS: Good morning.

11 JUDGE BHATTACHARYYA: Welcome. Do you understand
12 that you are under an obligation to tell the truth here
13 today?

14 THE WITNESS: I do.

15 STEPHEN WAYDO,

16 having been first duly sworn and/or affirmed
17 on his oath, was thereafter examined and testified as
18 follows:

19 JUDGE BHATTACHARYYA: You may proceed, counsel.

20 DIRECT EXAMINATION

21 BY MS. GARCIA:

22 Q. Good morning, sir. Would you please introduce
23 yourself? Where do you live? Where do you work?

24 A. My name is Stephen Waydo. I live in Saratoga,
25 California, and I work for Apple.

1 Q. What is your current role at Apple?

2 A. I'm director of a group called HID Health.

3 Q. What is HID Health?

4 A. HID stands for human interface devices. The
5 larger organization builds algorithms for sensors on a
6 variety of Apple products. My team, in particular, is
7 responsible for health algorithms primarily on the Apple
8 Watch.

9 Q. Dr. Waydo, could you briefly describe your
10 educational history?

11 A. Yes. I have a Bachelor's degree in aeronautics
12 and astronautics from the University of Washington that I
13 obtained in 2001, and a Ph.D. in control and dynamical
14 systems from Caltech that I obtained in 2007.

15 Q. What did you do after you received your Ph.D.
16 from Caltech?

17 A. Before and during graduate school I worked at
18 NASA Jet Propulsion Laboratory in Pasadena, and I continued
19 on there as a full-time employee for about six or eight
20 months after I finished my Ph.D.

21 Q. Can you give an example of a project that you
22 worked on at NASA Jet Propulsion Lab?

23 A. Yes. I worked on a variety of robotic heat space
24 exploration missions. The biggest one was a mission called
25 Deep Impact that flew out and took pictures of a comet in

1 2005.

2 (Clarification by reporter.)

3 Q. Did you work anywhere else before joining Apple?

4 A. Yes. After JPL I worked at a startup called C8
5 Medisensors for about four and a half years. At C8 we were
6 trying to build a noninvasive glucose measuring device.

7 Q. When did you join Apple?

8 A. I joined Apple in March of 2013.

9 Q. What motivated you to join Apple, Dr. Waydo?

10 A. Well, the startup I worked at was ultimately
11 unsuccessful, but I got very excited about the prospect of
12 the building consumer products, and I thought Apple offered
13 a tremendous learning opportunity to learn from the best
14 about how to build products, and to have the opportunity to
15 ship something at very large scale.

16 Q. And when you joined Apple in 2013, were you hired
17 for a specific product?

18 A. I was, although I didn't know it at the time. So
19 the interview process is very secretive. But I knew I would
20 be working on products, and I was informed on my first day
21 that the -- that I would be working on the first generation
22 Apple Watch.

23 Q. What features did you work on for the first
24 generation Apple Watch?

25 A. I worked on the algorithm supporting heart rate

1 sensing as well as wrist detection on the first Apple Watch.

2 Q. And what specifically was your role in developing
3 the heart rate sensor for that first watch?

4 A. The biggest part of my role was working together
5 with the hardware team to make sure that the hardware
6 sensors they were building were a good fit for the
7 algorithms we were building for particular end user
8 applications. And by the time we shipped that first watch,
9 I was responsible overall for the heart rate algorithm
10 development.

11 Q. Can you tell us briefly about the hardware and
12 software used for the heart rate sensing?

13 MS. GARCIA: Your Honor, at this point we would
14 like to move onto the Apple confidential record.

15 JUDGE BHATTACHARYYA: We're moving onto the Apple
16 confidential record.

17 (Whereupon, the hearing proceeded in confidential
18 session.)

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3 JUDGE BHATTACHARYYA: We're moving to the public
4 record.

5 THE WITNESS: Okay.

6 BY MS. SWAROOP:

7 Q. Dr. Waydo, I believe in your direct testimony you
8 said that you wanted to join Apple because you wanted to
9 learn from the best, correct?

10 A. Yes.

11 Q. Okay. And, Dr. Waydo, are you aware that Apple
12 has hired individuals from Masimo?

13 A. Yes.

14 Q. You know Mike O'Reilly, correct?

15 A. I do.

16 Q. You worked with Mike O'Reilly, correct?

17 A. Yes.

18 Q. And you filed a patent application with Mike
19 O'Reilly; isn't that correct?

20 A. It's possible. I don't know for sure.

21 Q. Okay. Let's bring up CX-1684. It's in your
22 binder. And we'll put it up on the screen.

23 Dr. Waydo, this is a published patent application
24 filed by Apple naming you and Michael O'Reilly among the
25 inventors; isn't that right?

1 A. Yes.

2 Q. Dr. Waydo, in your direct testimony you discussed
3 the heart rate sensing feature of the Series 0 watch; isn't
4 that right?

5 A. Yes.

6 Q. Okay. And that watch involved a heart rate
7 measurement, correct?

8 A. Yes.

9 Q. Okay. And the measurement of oxygen saturation
10 is a more difficult measurement than the heart rate
11 measurement, correct?

12 A. It's different for sure.

13 Q. It's more difficult, isn't it, Dr. Waydo?

14 A. It's very different. It solves a different set
15 of problems. I don't know that I would characterize it as
16 more difficult.

17 Q. Okay. Let's go to your deposition, which is in
18 your binder, and we'll take a look at pages -- page 163,
19 line 15, to 164, line 3.

20 A. Can you tell me where in my binder I can find
21 that?

22 Q. It should be in your binder, if there's a tab
23 there, I believe it's CX-298C.

24 A. Okay. And then what pages?

25 Q. Page 164 -- sorry -- page 163, line 15, to 164,

1 line 3, and I have it up on the screen as well.

2 A. Okay.

3 Q. And the question was from your own counsel:

4 What was your reaction to receiving the
5 assignment of helping develop the blood oxygen feature for
6 the Apple Watch?

7 And your answer:

8 I was both excited and, I'd say, intimidated.
9 It's a more difficult measurement than the heart rate
10 measurement, and, however, embarking on a new sensing
11 development project is always exciting and quite a ride. So
12 I was looking forward to it.

13 Were you asked that question and did you give
14 that answer at your deposition, Dr. Waydo?

15 A. Yes.

16 Q. Okay. So you would agree, then, that oxygen
17 saturation is a more difficult measurement than heart rate
18 measurement, correct?

19 A. It depends very much on the context, but in some
20 contexts, yes.

21 Q. Okay. And, in fact, it was extremely challenging
22 to develop the blood oxygen feature in the Apple Watch,
23 correct?

24 A. Yes.

25 Q. Now you've been involved in assessing the

1 accuracy of the blood oxygen feature of the Apple Watch,
2 correct?

3 A. Not in a hands-on way, but I reviewed the data.

4 Q. You understand when talking about accuracy that
5 there's a difference between sensitivity on the one hand and
6 specificity on the other hand, correct?

7 A. Yes.

8 Q. And let's talk first about sensitivity.

9 An Apple Watch that detects everyone who has a
10 particular medical condition would be an example of a highly
11 sensitive device, correct?

12 A. Yes.

13 Q. Okay. And that's different from specificity,
14 correct?

15 A. That's correct.

16 Q. Okay. An Apple Watch that detects medical
17 conditions in people who do not actually have that medical
18 condition would be an example of a device with low
19 specificity, correct?

20 A. Yes.

21 Q. Okay. And in your direct today you didn't
22 present any information on false alarms, that is, people who
23 went to seek out medical care or thought something was wrong
24 with them based on something from the Apple Watch but had no
25 reason to do so, correct?

1 A. Presented nothing to that effect, that's correct.

2 Q. Okay. Did you ever work with Chin San Han in
3 2013?

4 A. Yes.

5 Q. Are you aware that Mr. Han tore apart a Masimo
6 reflectance sensor during that time period?

7 MS. GARCIA: Objection, Your Honor. This lacks
8 foundation.

9 JUDGE BHATTACHARYYA: Ms. Swaroop?

10 MS. SWAROOP: I'm simply asking if he is aware,
11 Your Honor.

12 JUDGE BHATTACHARYYA: The objection is overruled.

13 A. Not that I can recall.

14 Q. Dr. Waydo, there has been feedback in the press
15 about the unreliability of the blood oxygen feature of the
16 Apple Watch Series 6, correct?

17 A. There's been a wide variety of feedback in the
18 press about the product, both positive and negative.

19 Q. Okay. Well, let's talk about some of that
20 feedback. Let's go to CX-1606 in your book, and I'm also
21 going to put it on the screen. It's an article from Input
22 Mag titled, quote, The Apple Watch's blood oxygen sensor is
23 less accurate than you think.

24 Do you see that?

25 A. I see that.

1 Q. Okay. And let's turn to page 2. Let's go to the
2 "Check with your doctor" paragraph. In this article it
3 says, quote, some day Apple's blood oxygen monitoring could
4 be accurate enough to actually detect medical conditions,
5 but right now it's more of a gimmick than anything else.

6 Is that correct, Dr. Waydo?

7 A. That's what this article says.

8 Q. Right. Let's go to CX-1608 in your book. This
9 is an article from the Verge entitled Apple Watch Series 6
10 review, minute improvements.

11 Do you see that?

12 A. What page are we looking at here?

13 Q. Sure. We're at CX-1608, page 1.

14 A. Okay.

15 Q. Okay. And if we go to page 2, there's a heading,
16 "bad stuff."

17 Do you see that?

18 A. I see that.

19 Q. And the third bullet point, "blood oxygen
20 monitoring is unreliable."

21 Do you see that?

22 A. I see that. I think here they are referring to
23 difficulties getting successful measurements, because we
24 tried very hard not to produce inaccurate measurements.

25 MS. SWAROOP: Okay. We need to go to the Apple

1 CBI record at this point.

2 (Whereupon, the hearing proceeded in confidential
3 session.)

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3 BY MS. SWAROOP:

4 Q. Dr. Waydo, you've been aware of Masimo since
5 2010, correct?

6 A. I think so.

7 Q. Okay. And you're aware of Masimo's products,
8 correct?

9 A. Not by model number, but generally speaking, yes.

10 Q. Okay. And in the specific area of clinical and
11 in-hospital monitoring, you consider Masimo to be an
12 important player and a leader; isn't that right, Dr. Waydo?

13 A. I believe they are an important player.

14 Q. And a leader, correct?

15 A. I don't know. I'm not deeply familiar with the
16 clinical market.

17 Q. Okay. Well, let's go to your deposition. It's
18 in your binder, CX-298C, page 127, line 25, to 128, line 6.

19 A. Can you repeat the page number again, please?

20 Q. Sure. Page 127, line 25 to 128, line 6.

21 A. Okay.

22 Q. And you were asked:

23 And do you consider Masimo to be a leader in that
24 field as well?

25 And you answered:

1 I consider Masimo to be an important player and a
2 leader just specifically in the area of clinical and
3 in-hospital monitoring.

4 Do you see that?

5 A. Yes. Masimo is certainly a market leader. I
6 don't know the extent to which they are a technology leader.

7 Q. So you were asked that question and you gave that
8 answer at your deposition, right, Dr. Waydo?

9 A. Yes.

10 Q. Thank you.

11 MS. SWAROOP: I have no further questions.

12 MS. GARCIA: Brief redirect, Your Honor.

13 REDIRECT EXAMINATION

14 JUDGE BHATTACHARYYA: Yes, go ahead. We're on
15 the public record. Do you want to stay on the public
16 record?

17 MS. GARCIA: No, Your Honor. We'll briefly go on
18 the confidential record please.

19 (Whereupon, the hearing proceeded in confidential
20 session.)

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3 JUDGE BHATTACHARYYA: We're moving to the public
4 record.

5 BY MS. GARCIA:

6 Q. Dr. Waydo, you were also shown some articles that
7 purported to describe the accuracy of Apple Watch.

8 Do you recall that?

9 A. Yes.

10 Q. Now as a factual matter, based on your work
11 developing the blood oxygen feature, how accurate are the
12 measurements that are presented to users?

13 A. We've tested the watch to the same standards that
14 are used to assess clinical grade devices, and we meet the
15 general accepted standards for accuracy of blood oxygen
16 devices.

17 Q. Dr. Waydo, you were asked some questions about
18 Dr. O'Reilly.

19 Do you recall that?

20 A. Yes.

21 Q. Did Dr. O'Reilly contribute any ideas to the
22 software or hardware of the Apple Watch blood oxygen
23 sensors?

24 MS. SWAROOP: Objection, foundation.

25 MS. GARCIA: I can restate it.

1 Q. Dr. Waydo, what role, if any, did Dr. O'Reilly
2 have on your health sensing algorithm team with respect to
3 the development of the blood oxygen feature?

4 A. Dr. O'Reilly is an anesthesiologist. He has
5 extensive knowledge around the physiological, that's in
6 general, and physiological of PPG signals in particular, but
7 he has no engineering expertise and had no contributions to
8 the hardware or software.

9 Q. Who did come up with the ideas for the software
10 and hardware of Apple Watch and the blood oxygen feature?

11 A. The majority of the work happened between the
12 health sensing hardware team, I believe we have heard from a
13 few of them in this hearing, as well as my team.

14 Q. Did any of those ideas come from Masimo?

15 A. No.

16 Q. Thank you, Dr. Waydo.

17 MS. GARCIA: I have no further questions at this
18 time.

19 RE CROSS-EXAMINATION

20 BY MS. SWAROOP:

21 Q. Ms. Garcia asked you about your familiarity of
22 accuracy with the Apple Watch health sensing features.

23 Do you recall that?

24 A. Yes.

25 Q. Okay. Are you aware of a published study from

1 the Mayo Clinic indicating that the Apple Watch triggers a
2 number of false alarms causing people to go to the hospital
3 and resulting in unnecessary utilization of hospital
4 resources?

5 A. We have a number of problems with that particular
6 study and the methodology there in general, but I'm aware of
7 the paper you're talking about.

8 Q. Thank you.

9 MS. SWAROOP: No further questions.

10 MS. GARCIA: Nothing further, Your Honor.

11 Thank you, Dr. Waydo.

12 JUDGE BHATTACHARYYA: Thank you for your time,
13 Dr. Waydo.

14 THE WITNESS: Thank you.

15 MR. MUELLER: We certainly defer to Your Honor,
16 but this might be a good time for the morning break before
17 our next witness.

18 JUDGE BHATTACHARYYA: It sounds like a good idea.
19 Let's take a morning break now. We're in recess for 15
20 minutes.

21 (Whereupon the proceedings recessed at 11:07
22 a.m.)s.

23 (In session at 11:23 a.m.)

24 JUDGE BHATTACHARYYA: We're back on the record.

25 MR. MUELLER: Thank you, Your Honor. Apple calls

1 as its next witness Brian Land.

2 JUDGE BHATTACHARYYA: Good morning, Mr. Land. Do
3 you understand you're under an obligation to tell the truth
4 in your testimony today?

5 THE WITNESS: Yes.

6 BRIAN LAND,

7 having been first duly sworn and/or affirmed
8 on his oath, was thereafter examined and testified as
9 follows:

10 JUDGE BHATTACHARYYA: Thank you.

11 MR. MUELLER: May I proceed, Your Honor?

12 JUDGE BHATTACHARYYA: Yes, please.

13 DIRECT EXAMINATION

14 BY MR. MUELLER:

15 Q. Good morning, Mr. Land. Could you please
16 introduce yourself to Her Honor?

17 A. Yes. My name is Brian Land. I live in Woodside,
18 California, and I work at Apple.

19 Q. Sir, could you please describe your educational
20 background starting with college?

21 A. Yes. I have a Bachelor's of Science in Material
22 Science and Engineering from Cornell University, and I have
23 a Master of Science in Material Science and Engineering from
24 Stanford University.

25 Q. Mr. Land, what year did you earn your Master's

1 from Stanford?

2 A. 1992.

3 Q. And what did you do next?

4 A. I went for work -- to work at a startup company
5 that designed sensors, specifically gyroscopes and
6 applications that integrated sensors and gyroscopes.

7 Q. What was the name of that company?

8 A. It was called Gyration.

9 Q. For how long did you work at Gyration?

10 A. I worked there 12 years.

11 Q. What type of work did you do in that time?

12 A. It was a small company. It was a startup, so I
13 had to wear a lot of hats. But the main tasks were
14 designing gyroscopes, designing test equipment, and
15 manufacturing equipment to build and test gyroscopes, and
16 then designing applications that integrated the gyroscopes
17 into bigger systems that we could try to sell to customers.

18 Q. Sir, what did you find interesting about working
19 on these types of sensors?

20 A. Well, I really like sensors because they require
21 engineering knowledge across multiple domains, examples
22 being electrical, mechanical, physics. And the best design
23 requires really an understanding of all of them, and so I
24 got to apply many engineering skills. And I also
25 particularly like sensors because they interface with the

1 world at large, they tell us something about the outside
2 world, and the world is complex, and, because it's complex,
3 it's a challenging engineering problem.

4 Q. Now, sir, when did you leave Gyration to go to
5 work at Apple?

6 A. It was spring of 2005.

7 Q. And why did you make the decision to join Apple?

8 A. Gyration was -- I really enjoyed working there,
9 but it was a small company and the products that we sold
10 were sold in modest numbers, and we did excellent
11 engineering work, we made great products, but I felt like I
12 had an opportunity to make a bigger impact at a company like
13 Apple, which is, you know, has been a premier company in the
14 electronics and computer space for many years.

15 Q. What is your current position at Apple?

16 A. It's -- my title is distinguished engineer.

17 Q. Sir, what does it mean to be a distinguished
18 engineer at Apple?

19 A. It's a title and a job level that is granted upon
20 engineers and technical people at Apple who have achieved
21 technical excellence during their time at Apple in
22 developing Apple products.

23 Q. And, Mr. Land, in your responsibilities as a
24 distinguished engineer today, which group do you work with
25 at Apple?

1 A. I lead a hardware development team called Health
2 Sensing Hardware.

3 Q. How many engineers work under your supervision?

4 A. It's about 55 or 56.

5 Q. Which Apple products does the Health Sensing
6 Hardware Group that you head up contribute to, which Apple
7 product in the market today?

8 A. It's primarily the Apple Watch, the health
9 sensors for the Apple Watch.

10 Q. Now I want to just briefly rewind to when you
11 joined the company and the period between when you joined
12 Apple and when you began working on Apple Watch.

13 Do you have that time period in mind?

14 A. Yes.

15 Q. In that time period, sir, what were some of the
16 other products that you worked on?

17 A. I've worked on many types of Apple products. I
18 worked on the first iPhone. I've worked -- I developed -- I
19 was part of the team that developed the touchscreen for the
20 first iPhone. I was part of the team that developed the
21 touchscreen for the first iPad.

22 I've also worked on optical sensors, such as an
23 optical proximity sensor, which would be used in a phone to
24 turn the screen off when you bring it near your head so your
25 cheek doesn't push a button by mistake.

1 I've also worked on ambient light sensors, which
2 look out into the room to determine how bright the room is,
3 or if you're outdoors and can adjust the screen brightness
4 to a level that's appropriate for the room brightness.

5 Q. Fair to say, you and your colleagues at Apple had
6 worked on many different types of sensors before the Apple
7 Watch?

8 A. Yes.

9 Q. Let me take you to the Apple Watch. The very
10 first Apple Watch was called the Series 0; is that right,
11 sir?

12 A. Yes, that's correct.

13 Q. And that was released to the general public in
14 April of 2015. Do I have that right?

15 MR. RE: Leading, Your Honor.

16 A. Yes, I think that's approximately correct. It
17 was in the spring of 2015.

18 JUDGE BHATTACHARYYA: I didn't rule on the
19 objection.

20 Mr. Mueller, can you rephrase so it's not
21 leading.

22 MR. MUELLER: Sure.

23 Q. When was the first Apple Watch, the Series 0,
24 released to the general public?

25 A. It was the spring of 2015. I don't remember the

1 exact date.

2 Q. And when did you personally start work on what
3 became the Series 0?

4 A. It would have been fall of 2012.

5 Q. What were your responsibilities with respect to
6 the Series 0?

7 A. I was in charge of the team that was tasked with
8 developing multiple optical sensors for the Apple Watch.
9 There were three.

10 One was the optical heart rate monitor, the
11 second was a optical, what we called wrist detection sensor,
12 which could determine when you removed the watch from your
13 wrist for purposes of data security, it would lock the watch
14 up if you removed it from your wrist, and I also worked on
15 the ambient light sensor for the Apple Watch.

16 Q. Let's focus, if we could, on the heart rate
17 sensor.

18 What were some of the engineering challenges that
19 you and your colleagues confronted in designing the heart
20 rate sensor for the Series 0?

21 A. Well, first of all, making a heart rate
22 measurement at the wrist was particularly challenging
23 because the wrist doesn't have a lot of blood volume there
24 to measure optically. But even on top of that, which was
25 already a daunting problem, we had to fit into a very small

1 product. As I mentioned, I've worked on many products, and
2 the watch was the smallest of all of them. So we did not
3 have much space to fit the sensor itself.

4 The battery was small, so we had to make sure
5 that the heart rate worked with as low power as possible.
6 And we also had to work, because it was a mobile device, we
7 had to work in all these use cases throughout the day for
8 people, people are different size, different shapes, they
9 choose different bands, they choose different tightness of
10 bands, and we needed to make sure that the heart rate
11 monitor worked well in all the use cases that our customers
12 would expect.

13 Q. Mr. Land, what was the engineering impact, if
14 any, of the industrial design of the Apple Watch?

15 A. Yeah. Industrial design is an important part of
16 the Apple product. It defines, not only the outside shape
17 of the product, but the look and the feel, and the design
18 language, the aesthetics.

19 So we not only had to make a product that checked
20 all the boxes of low power, fit in this tiny form factor,
21 worked well across all the use cases, but we also had to
22 make sure that it was beautiful and compatible with the look
23 and feel of what the ID studio was going for for the product
24 vision.

25 Q. Now you succeeded in meeting these challenges.

1 Do I have that right?

2 A. Yes.

3 Q. And what were some of the components in the heart
4 rate sensor for the Series 0 watch?

5 A. We had an LED package, which had a couple of
6 different LED wavelengths in it, and we had packaged
7 photodiodes so LEDs emitted light, the photodiodes collected
8 the light.

9 We also had the apertures that the LEDs and
10 photodiodes were lined up to shine light through, and we
11 also had optical barriers to provide isolation internally.
12 And we built a custom electrical chipset that drove the LEDs
13 and processed signals from the photodiodes.

14 Q. Mr. Land, what was the shape of the back crystal
15 in the Series 0 watch?

16 A. It was dome-shaped.

17 Q. Why was it dome-shaped?

18 A. My understanding is the primary reason that it
19 was dome-shaped was to provide a little extra space to fit
20 the coils that were part of the wireless charging system.
21 The Apple Watch charges wirelessly through a dock that has a
22 complementary shape, and the dome-shape, when in combination
23 with the charging cradle, in addition to providing
24 additional space for the charging coils, it also provides a
25 self-centering mechanism so that, when you place it on the

1 cradle, it aligns itself well to the other -- the charger
2 for efficient wireless charging.

3 MR. MUELLER: Your Honor, if we could go on the
4 Apple confidential record.

5 (Whereupon, the hearing proceeded in confidential
6 session.)

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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: Moving to the public
4 record.

5 BY MR. MUELLER:

6 Q. Now, sir, the health sensing hardware developed
7 by your team, there are, of course, other components beyond
8 that hardware in the Apple Watch; is that fair?

9 A. Yes.

10 Q. Let's take a look at RX-0319. And this is a
11 public technical specification for the Apple Watch Series 6.

12 Can you give Her Honor just a few examples of
13 other features and functions in the Series 6 beyond the
14 features developed by your team?

15 A. Yes. There's audio, which can be used to listen
16 to music or make a phone call, speaker microphone. There
17 are motion sensors that can be used to track your motion,
18 steps, your calories burnt through the day. There is a
19 near-field communication sensor that you can use for a
20 point-of-sale display.

21 There's all sorts of wireless connectivity,
22 Bluetooth, Wi-Fi, including cellular networks for network
23 connectivity, and that's one of the particularly challenging
24 module that's in the Apple Watch, because there's a powerful
25 transmitter that needs to talk with cell phone towers that

1 are perhaps miles away, and that's a potential source of
2 interference for all the sensors.

3 There's also other health sensors. There's an
4 ECG sensor. There's a touchscreen. There's -- and it's
5 really kind of a miniature computer in addition to all the
6 sensors.

7 Q. If we go to RX-0306, a Watch Series 7 Technical
8 Specification, is there a similarly broad array of features,
9 sir?

10 A. Yes. The list between Series 6 and Series 7 is
11 quite similar. There's a few I didn't mention, like GPS, to
12 tell you where you are on a map, there's a compass to give
13 you a heading if you're walking through a map, et cetera.

14 Q. Now I think you touched on some of the challenges
15 posed by all of these different components.

16 Can you tell us a bit more about the challenges
17 of developing a blood oxygen sensor in light of all of the
18 other components that we see on the specifications that
19 we've gone through?

20 A. Yes. The Apple Watch is very compact.
21 Everything is co-located in a very tight space. And every
22 single one of these sensors and modules is run by
23 electricity. It can be a source of interference,
24 interference into the blood oxygen sensor.

25 And we had to, in addition to making an excellent

1 blood oxygen sensor, we also had to consider all of these
2 interference sources and design the integration of the blood
3 oxygen sensor into the watch in a way that avoided these
4 interference sources and worked under the use cases that we
5 care about.

6 Q. And were you able to develop a reliable, accurate
7 sensor, notwithstanding those challenges?

8 A. Yes, we were.

9 Q. Now last few questions. You understand there's
10 five patents that are being asserted by the Complainants in
11 this case?

12 A. Yes.

13 Q. Before this investigation, Mr. Land, had you
14 heard or seen anything about these five patents?

15 A. No.

16 Q. You are the head of the Health Sensing Hardware
17 team at Apple for the Apple Watch; is that correct?

18 A. Yes.

19 Q. To the best of your knowledge, sir, did any of
20 the software or hardware developed by your team come from
21 ideas that originated at Masimo?

22 A. No.

23 Q. Did Marcelo Lamago contribute any ideas to the
24 software or hardware of the Apple Watch?

25 A. No.

1 Q. Did Dr. Michael O'Reilly contribute to the ideas
2 to the software or hardware of the Apple Watch?

3 A. No.

4 Q. Who did come up with the ideas for the software
5 and hardware for the blood oxygen sensor in the Apple Watch?

6 A. My team in conjunction with Steve Waydo's team
7 did all of the work to develop the blood oxygen sensor of
8 the Apple Watch.

9 Q. My final question. Are you proud of the work of
10 you and your team?

11 A. Yes, absolutely.

12 MR. MUELLER: Thank you, sir.

13 I pass the witness, Your Honor.

14 CROSS-EXAMINATION

15 BY MR. RE:

16 Q. Good morning, Mr. Land. My name is Joseph Re.
17 Nice to meet you.

18 A. Nice to meet you.

19 Q. Are you at least generally aware of how Apple
20 markets the Series 6 and Series 7 watches?

21 A. Somewhat, yes, a little bit.

22 Q. And are you aware of the fact that Apple has made
23 a conscious effort to move from the consumer space into the
24 health care space?

25 A. No.

1 Q. Have you ever looked at Apple's websites,
2 particularly Apple Health Care?

3 A. Apple Health Care? I'm not aware of that
4 website.

5 Q. Are you aware of how Apple markets the watch to
6 clinicians and doctors and hospitals on their website?

7 A. No.

8 Q. Are you aware of any company directive or
9 announcement that Apple is making an effort to move from
10 consumer electronics into the health care sector?

11 A. I'm sorry. Can you repeat the question? I
12 didn't follow.

13 Q. Are you aware of any company directive,
14 announcement, speech where Apple has made it very clear to
15 the world that they are moving from the consumer space into
16 health care and hospitals?

17 A. No.

18 Q. Okay. Let me take a look and show you --
19 We're going to go on the Apple confidential
20 portion.

21 (Whereupon, the hearing proceeded in confidential
22 session.)

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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: Welcome, Dr. Mannheimer.

4 Do you understand that you are under an
5 obligation to tell the truth in your testimony today?

6 THE WITNESS: I do.

7 PAUL MANNHEIMER,

8 having been first duly sworn and/or affirmed
9 on their oath, was thereafter examined and testified as
10 follows:

11 JUDGE BHATTACHARYYA: Go ahead, Mr. Mueller.

12 MR. MUELLER: It looks like we may have lost the
13 witness. There we go. We're ready to proceed.

14 JUDGE BHATTACHARYYA: Sounds good.

15 DIRECT EXAMINATION

16 BY MR. MUELLER:

17 Q. Good afternoon, Dr. Mannheimer. Can you please
18 introduce yourself to Her Honor?

19 A. Yes. Your Honor, my name is Paul Mannheimer. I
20 live in Los Altos and I work at Apple.

21 Q. Sir, what is your role at Apple?

22 A. I'm a sensor architect and scientist.

23 Q. What is your educational background starting with
24 college?

25 A. I have my undergraduate degree in physics from

1 the University of California at Berkeley.

2 Q. Did you earn any graduate degrees over the years?

3 A. Yes. I obtained My master's degree in applied
4 physics from Stanford University, and my Ph.D. from the
5 University of Lubeck in Germany in biomedical engineering.

6 Q. Now when did you start to work for Apple?

7 A. At the very end of 2014.

8 Q. Before you worked at Apple what were you doing?

9 A. Just prior to joining Apple I was an independent
10 consultant with my own consulting practice.

11 Q. And before serving as an independent consultant,
12 did you work at another company?

13 A. Yes, I did. I worked at Nellcor. Although at
14 the time they were Covidien, when I left, but it was Nellcor
15 and then a variety of flavors of Nellcor.

16 Q. Dr. Mannheimer, for how long did you work at
17 Nellcor?

18 A. I believe it was around 21 years.

19 Q. And would that be from around 1987 to 2008?

20 A. Yes, that's correct.

21 Q. What did you do in those 20-plus years at
22 Nellcor?

23 A. I developed pulse oximetry sensors, some
24 monitoring techniques, alarm handling techniques, I did
25 clinical studies, a variety of roles.

1 Q. Let me put up on the screen RDX-3.02, and,
2 Dr. Mannheimer, what are we looking at on the left-hand side
3 of the of the screen?

4 A. Those are Nellcor products, patient bedside
5 monitors, and a portable monitor at the bottom that uses
6 pulse oximetry technology.

7 Q. And, sir, what setting were these Nellcor
8 products designed for?

9 A. These were prescription-use pulse oximeters
10 intended for use in the hospital or a home care or other
11 critical and home-use settings.

12 Q. Now, in your time at Nellcor, did you become
13 familiar with Masimo?

14 A. Yes.

15 Q. And how are Nellcor and Masimo situated in the
16 industry as compared to each other?

17 A. They were competitors to one another.

18 Q. Did you become familiar, at a high level, with
19 the Masimo product offerings in your years at Nellcor?

20 A. Of that era, yes, I was.

21 Q. If we could go to RDX-3.02.

22 What are we looking at here on the right-hand
23 side of the screen?

24 A. Those are Masimo bedside monitors and portable
25 akin to what we see on the left.

1 Q. Now what are some of the key considerations that
2 you had to deal with personally in working on clinical
3 products at Nellcor?

4 A. Well, they need to be reliable, accurate, they
5 monitor continuously as a bedside safety monitor, relied
6 upon by clinicians. The readings that were provided were
7 generally interpreted by clinicians, and -- that's the bulk
8 of it that I would call out.

9 Q. Now you joined Apple in 2014; is that right, sir?

10 A. Yes.

11 Q. Why did you decide to join Apple?

12 A. I had received a recruiting email from the Apple
13 recruiter that said they were interested. I was intrigued,
14 because I didn't exactly know why. Shortly after, the
15 company had their launch, early September of 2014,
16 announcing the watch, and so I got introduced to this
17 concept of heart rate monitoring and consumer wearables. I
18 knew there were people at Apple from -- with medical
19 backgrounds but did not know other than what the blog sphere
20 suggested that they might have been working on.

21 After meeting a few of the people during my
22 interview process, it seemed like it would be a very
23 interesting place to be and an interesting time to work in a
24 consumer environment, consumer product environment.

25 Q. When you joined Apple in 2014, what assignment

1 were you given?

2 A. I didn't know what it was at the time of the
3 interview, but after joining, and several days later, Brian
4 Land told me that I would be asked to look into doing pulse
5 oximetry at the wrist for the Apple Watch.

6 Q. And you joined, to be clear, Mr. Land's health
7 sensing hardware team?

8 A. Yes, that's correct.

9 Q. Now let's pull up RDX-03.03.

10 MR. MUELLER: And let me go on the Apple
11 confidential record at this point to be safe.

12 (Whereupon, the hearing proceeded in confidential
13 session.)

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3 JUDGE BHATTACHARYYA: Moving back to the public
4 record.

5 BY MR. MUELLER:

6 Q. Dr. Mannheimer, just a few more questions.

7 There's been some suggestions in this hearing
8 that the blood oxygen sensor in the Apple Watch is
9 inaccurate.

10 Based on your own personal experience, as a
11 factual matter, is it accurate?

12 A. Absolutely, it is. Relative to the ISO standard,
13 which says the accuracy is calculated as a root means square
14 when tested in the manner precisely like we did from a study
15 protocol perspective, as we did at UC San Francisco, against
16 blood draws measured in a cooximeter, as well as the FDA
17 guidance, which is a similar document more specific to U.S.
18 use, recognizes the international standard plus some
19 additional requirements, and additional set of accuracy
20 requirements, the Apple Watch that we characterized meets
21 both the FDA and the ISO standard guidance for accuracy.

22 Q. Dr. Mannheimer, this case involves five patents
23 asserted by the Complainants.

24 Before this investigation had you ever heard of
25 any of them?

1 A. No, I had not.

2 Q. Dr. Mannheimer, you were part of the research and
3 development project that resulted in the blood oxygen sensor
4 in the Series 6 and Series 7 watch, right?

5 A. Yes.

6 Q. In fact, fair to say you were at the heart of
7 that R&D process?

8 A. Yes.

9 Q. Dr. Mannheimer, did any, any, of the sensors,
10 hardware and software, come from Masimo?

11 A. No.

12 MR. JENSEN: Object, Your Honor, lacks
13 foundation.

14 JUDGE BHATTACHARYYA: Would you explain a little
15 further?

16 MR. JENSEN: How would he know whether the other
17 people did or did not rely upon Masimo information? He can
18 only know what he relied upon, not what was in their heads.

19 MR. MUELLER: I can rephrase, Your Honor.

20 JUDGE BHATTACHARYYA: Okay. Please do.

21 BY MR. MUELLER:

22 Q. From your position at the heart of the research
23 and development of the blood oxygen sensor for the Apple
24 Watch, have you, Dr. Mannheimer, personally seen any
25 evidence that any of the software or hardware came from

1 Masimo ideas?

2 A. No, I have not.

3 Q. Who actually developed the software and the
4 hardware in the blood oxygen sensor in the Apple Watch
5 Series 6 and Series 7?

6 A. The folks from my team in Brian's organization
7 and the HID team under Steve's organization.

8 Q. Thank you, sir.

9 MR. MUELLER: I have no further questions at this
10 time, and I pass the witness, Your Honor.

11 MR. JENSEN: May I proceed, Your Honor?

12 JUDGE BHATTACHARYYA: Yes, please go ahead.

13 CROSS-EXAMINATION

14 BY MR. JENSEN:

15 Q. Good morning for me, Dr. Mannheimer. I think
16 it's your afternoon or getting close.

17 A. Yes.

18 Q. My name is Steven Jensen, one of Masimo's
19 lawyers. Good to meet you. I think we met in the '90s. I
20 will be asking you some questions today.

21 Before we begin, you should have a sealed package
22 or an envelope there that you are welcome to open now. We
23 will be looking at some of the documents in there.

24 Is it in the room with you?

25 A. Yes.

1 Q. If you could open that.

2 If I heard your testimony correctly, you've been
3 designing pulse oximetry sensors and pulse oximetry systems
4 for decades, correct?

5 A. Yes.

6 Q. If I heard you right, you worked on pulse
7 oximetry at Nellcor from 1987 to 2008; is that correct?

8 A. Yes.

9 Q. And so if I calculated in my head right, you were
10 part of the pulse oximetry team at Nellcor during the
11 development and introduction of at least the M3000, the O4,
12 the O5, the O5CI, and the N600 pulse oximeters; is that
13 correct?

14 A. Yes, that's correct.

15 Q. Did I miss any?

16 A. I don't recall if there were additional form
17 factors that were created.

18 Q. But at least those technologies you were involved
19 with the development, correct?

20 A. Yes.

21 Q. And you were at Nellcor in 2004 and testified for
22 Nellcor in a patent trial between Masimo and Nellcor, did
23 you not?

24 A. Yes.

25 MR. MUELLER: Your Honor -- I'm sorry,

1 Dr. Mannheimer. Just give me a moment here.

2 I'm going to object on relevance grounds to
3 discussion of another litigation involving unrelated patents
4 asserted against products of another company developed in
5 another time period. I don't think it's relevant to this
6 case what the infringement allegations were made in another
7 case involving different patents against a different
8 company.

9 MR. JENSEN: Your Honor, I didn't ask any
10 questions about the content of that case, and it just simply
11 goes to bias and the high priority objection on this issue
12 was overruled on the Phillips decision, but I do not plan to
13 ask any questions about the content of that case, one
14 question only, the one I just asked.

15 JUDGE BHATTACHARYYA: The objection is overruled.

16 Q. So did you answer my question? You testified in
17 that trial, correct?

18 A. Yes.

19 Q. Over the years you have designed many sensors for
20 different body locations, correct?

21 A. Yes.

22 Q. And I mean pulse oximetry sensors in that,
23 correct?

24 A. That's how I interpreted it, yes.

25 Q. And you have filed and been granted many patents

1 on your pulse oximetry ideas, correct?

2 A. Correct.

3 MR. JENSEN: At this time, Your Honor, I'm going
4 to need to the move to the Apple confidential record.

5 (Whereupon, the hearing proceeded in confidential
6 session.)

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3 AFTERNOON SESSION

4 (In session at 2:00 p.m.)

5 JUDGE BHATTACHARYYA: We're on the public record.

6 MR. MUELLER: Thank you, Your Honor. We would

7 like to call as our next witness Scott Cromar.

8 Hello, Mr. Cromar.

9 THE WITNESS: Good morning or good afternoon.

10 Can you hear me and see me okay?

11 JUDGE BHATTACHARYYA: I can.

12 THE WITNESS: Okay. Great.

13 JUDGE BHATTACHARYYA: Do you understand that
14 you're under an obligation to tell the truth here today?

15 THE WITNESS: Yes.

16 SCOTT CROMAR,

17 having been first duly sworn and/or affirmed
18 on his oath, was thereafter examined and testified as
19 follows:

20 JUDGE BHATTACHARYYA: Proceed, counsel.

21 DIRECT EXAMINATION

22 BY MR. MUELLER:

23 Q. Good afternoon, Mr. Cromar. My name is Joe
24 Mueller, and I'd like to ask you a few questions, if I
25 could.

1 A. Okay.

2 Q. Mr. Cromar, you are an attorney, correct?

3 A. Yes, that's correct.

4 Q. And you prosecute patents, right, sir?

5 A. Yes.

6 Q. You've prosecuted in the range of a hundred or so
7 patents for Masimo or Cercacor, correct?

8 A. I don't know what the specific number is. That
9 might be right. Something like that, quite a few.

10 Q. Now, sir, you're a partner at Knobbe Martens,
11 right?

12 A. Yes, that's right.

13 Q. That's the same firm as Mr. Re and Ms. Swaroop
14 and their colleagues, correct?

15 A. Yes.

16 Q. Now you, sir, were the prosecutor and helped
17 primary responsibility for the prosecution of three of the
18 patents in this investigation; is that fair?

19 A. Yes, that's right.

20 Q. The '501, '502, and '648, correct?

21 A. Correct.

22 Q. Now the original priority application for those
23 patents was filed in 2008, right?

24 A. Are you referring to the provisionals that the
25 patents-in-suit claim priority to?

1 Q. That's correct, sir.

2 A. I believe there were multiple provisionals, so
3 they were -- I think they were filed in 2008 in different
4 times in 2008.

5 Q. Now the '501, '502, and '648 were filed on
6 September 24th of the year 2000, right? I'm sorry. 2020.
7 I misspoke. 2020. Is that right, sir?

8 A. That's consistent with my recollection at the
9 moment. I would have to look at the files just to confirm
10 that that date is correct, but I believe that's correct.

11 Q. Just to make this a little easier, if we could go
12 to tab 1 in the binder that you should have in front of you.
13 This is your deposition from this case. You were deposed,
14 right, sir?

15 A. Yes, I was deposed. I don't know for sure which
16 binder you're referring to. I have a binder that says
17 Cromar direct on it and there's also a sealed envelope.

18 Q. You can open the sealed envelope right now, sir.

19 A. Okay. Let me grab that. I was told that I
20 should open this on camera; is that correct?

21 Q. Go right ahead.

22 A. All right. So I think, is this the binder that
23 you're referring to?

24 Q. Yes, tab 1, please, sir. Page 108, lines 14-17.
25 We can put these up on the screen too.

1 Question. Okay. So you filed the applications
2 for the '501, '502, and '648 patents on the same day, that
3 was September 24th, 2020, correct?

4 Answer. I believe that's correct.

5 Does that refresh your memory, sir?

6 A. Sorry. You got a little ahead of me. I was
7 trying to open to the correct page. So you said it's page
8 108?

9 Q. No -- that's right -- 108, lines 14-17, please,
10 sir.

11 A. Okay. I'm there now.

12 Q. And you see here, you were asked whether you
13 filed these three patents on the same day, September 24th,
14 2020, correct?

15 A. Correct. I believe that's the correct date, but
16 I would have to go verify that by looking at the file
17 histories.

18 Q. Now that's 12 years after 2008, right?

19 A. Yes. You're asking for the difference between
20 the year 2008 and the year 2020, correct?

21 Q. Twelve years, right?

22 A. That would be 12 years, that's right.

23 Q. Now you couldn't identify at your deposition any
24 reason why, for example, the application for the '501 patent
25 could not have been filed earlier than September of 2020,

1 correct?

2 A. I don't know that that's correct. Can I refresh
3 my recollection, or do you have something that can remind
4 me?

5 Q. Absolutely. Let's go to page 90 in your
6 deposition, lines 2-11.

7 Question. Sitting here today, you cannot
8 identify any reason why the application for the '501 patent
9 could not have been filed earlier than September 2020,
10 correct?

11 Yeah. Again, I -- I haven't formed an opinion on
12 that, and I don't feel comfortable doing so as we sit here.

13 Were you asked that question and did you give
14 that answer?

15 A. Yes, that's correct. I believe my answer to the
16 question was that I haven't formed an opinion on it, and,
17 you know, at the time I hadn't formed an opinion on it.

18 Q. Let's pull up CX-1287. This is a press release
19 for the release of the Apple Watch Series 6. Let me just
20 focus you on the date.

21 Do you see September 15th, 2020?

22 A. Yeah, I see that on the screen.

23 Q. That's nine days before you filed the
24 applications that led to the '501, '502, and '648 patents,
25 correct?

1 A. Just to confirm, I understand the question
2 correctly, you're asking for the difference between
3 September 15th, 2020, and September 24th, 2020?

4 Q. Nine days, right?

5 A. Yes, there's -- that would be nine days, that's
6 right.

7 Q. Now over the course of the prosecution of these
8 three patents, the '501, '502, and '648, you had access to
9 confidential teardowns of the Apple Series 6 watch, correct?

10 A. I am not sure -- the question sounds kind of like
11 it's potentially getting into privileged information, and
12 I'm not sure if I can answer.

13 Q. Let me take you to your deposition, at page 245,
14 lines 12-18.

15 Question. Did you see those nonpublic teardowns
16 of the Apple Watch Series 6 during prosecution of the '501,
17 '502, and '648 patents?

18 The Witness: Yes, I think so.

19 Were you asked that question and did you give
20 that answer?

21 A. I'm getting to that page. I see that, yes, I
22 believe that's correct.

23 Q. Now at your deposition you did not answer because
24 you said you could not answer without revealing privileged
25 information the following question:

1 You drafted the claims of the '501 patent
2 application to cover Apple Watch products.

3 At your deposition you were unable to answer that
4 question without revealing privileged information, true?

5 MR. RE: Objection, Your Honor, again, seeing an
6 adverse inference from the assertion of the privilege which
7 is wholly improper and unethical.

8 MR. MUELLER: It's neither improper nor
9 unethical, Your Honor. Right now I'm not asking for any
10 adverse inference; I'm asking for the facts.

11 MR. RE: No, the privilege has been asserted. I
12 don't see why you're asking questions where you know the
13 privilege has been asserted.

14 MR. MUELLER: Your Honor, what I asked was, you
15 couldn't answer the question on the grounds that it would
16 reveal privileged information. This is precisely the same
17 question we asked an earlier witness in the hearing,
18 Your Honor.

19 MR. RE: Sounds like we're in agreement.

20 MR. MUELLER: That was not a sustained objection.
21 The question was permitted. I'm asking the exact same form
22 of the question now.

23 JUDGE BHATTACHARYYA: I'll allow the question.

24 Mr. Re, to the extent you want to argue, there
25 shouldn't be any adverse inference.

1 MR. RE: I'm sorry. I didn't hear Your Honor.
2 There was some noise from another room.

3 JUDGE BHATTACHARYYA: To the extent you want to
4 argue that there should not be any inference, adverse
5 inference from that testimony, you're free to make that
6 argument, but I'm not going to sustain the objection.

7 BY MR. MUELLER:

8 Q. Mr. Cromar, I want to repeat the question just to
9 make sure you have it fresh in mind.

10 At your deposition you didn't think you could
11 answer without revealing privileged information following
12 question: You drafted the claims of the '501 patent
13 application to cover Apple Watch products.

14 You were asked that question and you said you
15 couldn't answer it without revealing privileged information,
16 true?

17 A. Did you want to point me to part of the
18 deposition transcript so I can confirm that that's accurate?

19 Q. Certainly. Let's go to page 179, lines 13-20.

20 Question. You drafted the claims of the '501
21 patent application to cover Apple Watch products, correct?

22 I don't think I can answer that without revealing
23 privileged information.

24 Were you asked that question and did you give
25 that answer?

1 A. That seems correct. Like I said earlier, it
2 seems like the question is asking for potentially, you know,
3 protected information, privileged information, so I'm not
4 sure that I can answer it.

5 Q. Thank you, sir.

6 MR. MUELLER: I pass the witness.

7 CROSS-EXAMINATION

8 BY MR. RE:

9 Q. Good afternoon or good morning for you,
10 Mr. Cromar.

11 You were asked about your awareness of the Apple
12 Watch during prosecution. I wonder if you can tell me if
13 there's anything else you can recall with regard to Apple
14 during the prosecution of these applications that
15 Mr. Mueller raised with you.

16 MR. MUELLER: Your Honor, I'm just going to
17 object to the question to the extent that it elicits
18 information that we were shielded from receiving on the
19 basis of a privilege assertion both at his deposition and
20 just now.

21 If it's going to be something different, I have
22 no objection, but I do object if we're now going to hear
23 facts that were not given at his deposition and were not
24 given when I just asked him questions a few minutes ago.

25 MR. RE: Of course.

1 Q. Only stuff that you know is public and doesn't
2 involve an attorney-client communication.

3 MR. MUELLER: I'm not sure what that question is
4 referring to, Your Honor, so I object to the form of the
5 question.

6 JUDGE BHATTACHARYYA: I'm not going to sustain
7 the objection at this time. Why don't we go ahead and see
8 what the testimony is.

9 A. Just to confirm that I understand the question,
10 you're talking about around the time of the prosecution of
11 the patents-in-suit?

12 Q. Yes. Yes, and what was happening.

13 A. Sure. I recall that around that time Apple was
14 producing quite a bit of prior art through IPRs and District
15 Court litigation, and that that was information that we
16 wanted to make sure we took into consideration and filed an
17 IDS, for example, Masimo was developing their watch around
18 that time. Prosecution of other patent applications was
19 going on. Those are what I can think of at the moment.

20 Q. Are you suggesting you used -- you sent to the
21 Patent Office IPR materials generated by Apple?

22 A. Yeah, that's right. I'd have to go look at the
23 file just to confirm exactly which materials or which IPRs
24 had, you know, started at that point, but that was
25 definitely information that was being filed in IDSes to the

1 Patent Office during that time and that we were receiving.

2 Q. One other area I want to get to. Mr. Mueller
3 suggested or made some comment about a 12-year period. Did
4 you remember that?

5 A. Yes.

6 Q. And he is talking about the 12-year period
7 between the filing of some provisional applications in 2008
8 and the filing of some patents in 2020. Do you remember
9 that? That's the 12-year period we're talking about?

10 A. Yes, I remember.

11 Q. And can you, very briefly, just describe for
12 Your Honor what was happening with regard to the patent
13 prosecution activity in this family of patents in that
14 12-year time frame?

15 A. In this family there was active prosecution
16 through that time period. I believe there were over 30
17 applications or continuations filed and actively prosecuted
18 during that time period.

19 Q. Was there any sort of delay on your part in
20 prosecuting those patents in that period?

21 A. No.

22 MR. RE: I have no further questions.

23 Thank you, Mr. Cromar.

24 MR. MUELLER: Very briefly, Your Honor.

25 JUDGE BHATTACHARYYA: Yes, please proceed.

1 REDIRECT EXAMINATION

2 BY MR. MUELLER:

3 Q. I'm going to pull up a slide from my opening
4 statement for just a moment, and this shows some of the
5 prosecution activities for this family of patents.

6 This is RDX-1.16. Here we have the timeline for
7 the '501, '502, and '648 patents. Do you see that, sir?

8 A. Yes. Excuse me. Yes, I see that.

9 Q. And do you see in the top we have various, in
10 blue, Apple Watch releases, Apple Watch Series 0, Series 4,
11 Series 5, Series 6, do you see that?

12 A. Yes, I see that.

13 Q. Do you see that in each instance, in each
14 instance, you and other folks prosecuting applications in
15 this family on behalf of Masimo -- I'm not sure if it was
16 just you or others as well -- filed applications after the
17 Apple Watch models were released? Do you see that, sir?

18 A. I see the timeline and the notes on it. I don't
19 think I could come to the conclusion that -- it seems like
20 you're implying.

21 Q. Sir, you have no reason as you sit here right now
22 to contest the timeline shown on this slide, correct?

23 A. No. I think I do.

24 Q. What specifically are you contesting in terms of
25 the chronology?

1 A. Well, there's at least a couple of things. The
2 first one, I would say, is I see a five-year gap arrow from
3 2008 to 2015. I'm not sure what that represents. I know
4 that during that time period in the family there were many
5 applications filed and being actively prosecuted. So
6 that's, you know, that's just one example.

7 The slide also represents a 12-year delay, which
8 I just answered a question a moment ago, I do not believe
9 there was a delay.

10 Q. Sir, I guess -- let me put it this way. I'm not
11 asking you about the labeling. I'm asking you about the
12 chronology.

13 You do not contest, do you, sir, that the dates
14 shown for Masimo filing applications in this family on this
15 slide are correct.

16 A. Well, I don't know if this represents all the
17 filings in family. It appears to me it's missing some of
18 the filings. So to that extent I think it would be a
19 misrepresentation.

20 MR. MUELLER: I have nothing further for this
21 witness, Your Honor. I pass the witness.

22 RE CROSS-EXAMINATION

23 BY MR. RE:

24 Q. Please explain what you mean why it is a
25 misrepresentation.

1 If we can keep that slide up. Where did it go?

2 MR. MUELLER: We can pull it back up.

3 MR. RE: We'll do it from here.

4 Q. Before we begin, Mr. Cromar, have you ever seen
5 this slide before?

6 A. No, I have not.

7 Q. Okay. You didn't like the label "gap." Can you
8 please explain why you didn't like the five-year gap label?

9 A. Yes. Like I said, I think during that time
10 period there were a dozen applications being actively
11 prosecuted in this family, including continuation filings
12 during that time period.

13 Q. With regard to the 12-year delay, you said there
14 was no delay, but what did you mean why there's no delay?

15 A. Well, I don't know what delay means in this
16 context, and if it's referring to a delay that I may have
17 done, I don't recall any delays so -- and, you know, like I
18 mentioned earlier, I believe through that 12-year time
19 period there were more than 30 applications being
20 prosecuted, and I only see a small fraction of those
21 represented on the slide. It only mentions one, two --
22 let's see -- plus four plus two, so that's, you know, seven
23 applications. I know that there were more than 30. So I
24 don't know -- the delay seems like a misrepresentation and
25 this slide doesn't represent the family very well.

1 Q. And in the misrepresentation, is there some sort
2 of correlation, we'll call it, between when you file
3 applications in those 30 cases or so you mentioned and the
4 releases of various Apple Watches?

5 A. I don't think so, especially because a huge
6 portion of the prosecution happened before any Apple Watch
7 was released. Like I said, in that early period there were
8 many applications, so I'm not sure how there could be a
9 correlation.

10 Q. Okay.

11 MR. RE: I have no further questions, Your Honor.

12 MR. MUELLER: May I ask just one, Your Honor?

13 JUDGE BHATTACHARYYA: Yes.

14 REDIRECT EXAMINATION

15 BY MR. MUELLER:

16 Q. You referred to or Mr. Re referred to
17 misrepresentations. Sir, the application filing dates are a
18 public record, correct?

19 A. I believe that's correct. All of the
20 applications in the family were publicly -- they were
21 published and prosecuted in public.

22 MR. MUELLER: Nothing further, Your Honor.

23 MR. RE: If I can have one follow-up.

24 BY MR. RE:

25 Q. Your suggestion of misleading, just so I

1 understand, it's not that information concerning the filing
2 dates, you're suggesting it's misleading to the extent that
3 it's missing additional information, is that what your point
4 is?

5 MR. MUELLER: Your Honor, I'm going to object to
6 the leading. It's a highly leading question, I object.

7 MR. RE: I have no further questions.

8 THE WITNESS: I'm happy to clarify my answer,
9 because I kind of recognize --

10 JUDGE BHATTACHARYYA: If there's nothing further,
11 I will need to rule on the objection.

12 Mr. Re, are you withdrawing your question?

13 MR. RE: I'm withdrawing the question,
14 Your Honor.

15 JUDGE BHATTACHARYYA: Thank you for your time,
16 Mr. Cromar.

17 MR. MUELLER: As our next witness we call
18 Mr. Majid Sarrafzadeh, and Mr. Selwyn will do the
19 examination.

20 JUDGE BHATTACHARYYA: Welcome, Dr. Sarrafzadeh.
21 Did I pronounce your name correctly?

22 THE WITNESS: You sure did.

23 JUDGE BHATTACHARYYA: Okay. Good. Do you
24 understand that you are under an obligation to tell the
25 truth here today?

1 THE WITNESS: I do.

2 MAJID SARRAFZADEH,

3 having been first duly sworn and/or affirmed
4 on his oath, was thereafter examined and testified as
5 follows:

6 JUDGE BHATTACHARYYA: Thank you. You may go
7 ahead. I think you're on mute, though.

8 MR. SELWYN: Can you hear me now?

9 JUDGE BHATTACHARYYA: Yes, perfectly.

10 MR. SELWYN: Thank you. May I proceed,
11 Your Honor?

12 JUDGE BHATTACHARYYA: Yes.

13 DIRECT EXAMINATION

14 BY MR. SELWYN:

15 Q. Good afternoon, sir. Could you please introduce
16 yourself?

17 A. I'm Majid Sarrafzadeh. I work and live in
18 Southern California.

19 Q. Have you prepared a set of slides to present with
20 your testimony today?

21 A. Yes, I have.

22 Q. Can we have RDX-7-2?

23 Would you please describe your educational
24 background?

25 A. Certainly. I have received my Bachelor of

1 Science, Master of Science, and Ph.D., all in electrical and
2 computer engineering, from University of Illinois at
3 Urbana-Champaign.

4 Q. While working towards your various degrees, did
5 you study electrical and thermal technologies?

6 A. Yes, those are the two topics among others that I
7 have focused on.

8 Q. Can we turn to RDX-7-3?

9 Where do you work today?

10 A. I work at University of California at
11 Los Angeles, also known as UCLA. I'm a distinguished
12 professor in both computer science and electrical and
13 computer engineering.

14 Q. Have you had any positions or roles at UCLA in
15 addition to being a professor?

16 A. Yes. I have been co-director, cofounder, and
17 director of various national and local institutes, mostly in
18 the area of wireless, held, and handheld monitoring.

19 Q. What is the UCLA Wireless Health Institute?

20 A. It's an institute that tries to address health
21 care problems using technology. They investigate problems
22 in collaboration with health care providers and go from
23 inception to hardware and software design to clinical trial,
24 patent filing at times, and eventually commercialization of
25 our ideas.

1 Q. Have you taught any classes at UCLA related to
2 sensors or medical devices?

3 A. Yes, both at undergrad and graduate levels. For
4 the past 20 some years I've been doing that continuously.

5 Q. Have you conducted any research related to
6 sensors or medical devices?

7 A. My research in the past 20 plus years has been on
8 sensors and medical technology devices.

9 Q. Could we have RDX-7-4?

10 Would you please describe your experience in the
11 medical device industry?

12 A. There has been numerous of them, but by way of
13 example, I'm a cofounder of three companies in this area
14 among a few other companies. These three companies are
15 Bruin Biometrics, MediSense Wireless, and Wanda Health.

16 Q. Do you have any experience with thermal
17 management technologies?

18 A. Yes. A number of my publications is related to
19 thermal management, a company that I cofounded in 1999
20 called Higher Design deals hardware and thermal management
21 of circuits.

22 Q. Could we have RDX-7-5?

23 Do you have any publications, sir?

24 A. I have a few. I have about 600. I think 550 or
25 so of them are peer-reviewed. And a good number of them are

1 in various medical devices. I've coauthored three books,
2 and I have a few patents, 25 plus of them, and one of
3 them -- sorry.

4 Q. Please. Finish.

5 A. One of them is some of my publication and one of
6 the patents is entitled Apparatus Systems and Methods for
7 Tissue Oximetry and Perfusion Imaging.

8 Q. Can we have RDX-7-6?

9 Let me ask you, sir, to be a little bit immodest
10 for a moment. Have you received any awards for your work?

11 A. I'm honored to have received a few awards. One
12 is I'm a fellow of IEEE, Institute of Electrical and
13 Electronics Engineers, the number one electrical engineering
14 institution in the world.

15 I'm a fellow of National Academy of Inventors.
16 I'm truly humbled that Time Magazine named one of our
17 inventions and products for change -- for making a change in
18 health care standards as the best invention in medical
19 technology in 2020.

20 I also received the Best Innovation Award in
21 2018. And also been blessed with a number of teaching
22 awards, both in my previous institution at Northwestern and
23 currently at UCLA.

24 Q. Could we display CX-322-A?

25 Is this your CV?

1 A. This seems to be a copy of my CV, correct.

2 Q. Is it accurate?

3 A. It seems to be fairly accurate, although I'm sure
4 there a few additional publications.

5 MR. SELWYN: Your Honor, Apple offers Professor
6 Majid Sarrafzadeh as an expert in physiological monitoring
7 technologies including the design of pulse oximetry sensors.

8 MR. RE: No objection.

9 JUDGE BHATTACHARYYA: At this time
10 Dr. Sarrafzadeh is admitted as an expert in physiological
11 monitoring technologies including the design of pulse
12 oximetry sensors.

13 BY MR. SELWYN:

14 Q. RDX-7-7, please.

15 What was your assignment, sir, for this case?

16 A. My assignment was to analyze the validity of
17 patents '745 and '127 and domestic industry claims. I was
18 asked to analyze infringement of the asserted claims. And,
19 finally, analyze the technical prong of domestic industry
20 requirement.

21 Q. Slide RDX-7-8.

22 In brief, what materials did you consider for
23 your assignment?

24 A. The materials included but not limited to '745
25 and '127 patents and their prosecution histories, claim

1 construction briefing, statements and hearing transcripts,
2 Complainants' expert reports, including documents that were
3 cited there, prior art references, deposition transcripts,
4 conversations with a number of Apple engineers and other
5 experts, and the hearing testimony that has been going on
6 this week.

7 Q. Can we begin, Professor, with the '127 patent?

8 A. Surely.

9 Q. Can we display, please, RDX-7-9?

10 What does the '127 patent discuss generally?

11 A. This is related to a physiological monitoring
12 device, and, as you see, in Fig. 12 of the patent, light
13 emitters are shown that is in contact with the thermal mass
14 that is on a substrate, and there are temperature sensors
15 connected to them, to the thermal mass.

16 Q. Slide 7-10.

17 What is the level of ordinary skill in the art of
18 the '127 patent?

19 A. In my opinion, it's working knowledge of
20 physiological monitoring and thermal management technology,
21 one would have a Bachelor of Science in an academic
22 discipline emphasizing design of electrical and thermal
23 technologies in combination with training or at least one or
24 two years of related work experience with processing of data
25 information, including but not limited to physiological

1 monitoring technology.

2 Obviously, if somebody had a Master of Science in
3 relevant academic discipline with less than a year of
4 related work experience, that would qualify.

5 Q. Slide 7-12.

6 What combinations of prior art references have
7 you compared to claim 9?

8 A. Fundamentally two. I have looked at combination
9 of Mendelson and Webster and Yamada and Noguchi.

10 Q. On the screen our next slide is RDX-458.

11 What is that reference?

12 A. This is an article by Mendelson that was
13 published in 1991, and it talks about gas monitoring in the
14 body.

15 Q. When did you first become aware of that article?

16 A. Roughly 20 years ago.

17 Q. Can we put on the screen RX-35, which is slide
18 7-14.

19 What is this reference sir?

20 A. This is a textbook called "Design of Pulse
21 Oximeters" by Webster. This was published roughly in 1997.

22 Q. When did you become aware of Webster?

23 A. Give or take 20 years ago.

24 Q. How well-known is the Webster textbook?

25 A. It is one of the standard textbooks in the field.

1 Q. Could we have slide 7-15?

2 When were pulse oximeters first commercially
3 introduced?

4 A. Webster says that they were introduced in 1983,
5 but actually truly some of the earlier history goes back to
6 World War II, and first commercialization in 1973.

7 Q. So let's turn now to the claim. Can we have
8 slide 7-16?

9 Does Mendelson disclose the preamble of claim 7?

10 A. Yes, that's undisputed. If we look at Fig. 1016
11 at 24 of Mendelson, it talks about the noninvasive
12 reflective SAO2 sensor, and the corresponding figures show
13 some part of that.

14 Q. Using Fig. 10.16 on the screen, can you briefly
15 explain how pulse oximeters work?

16 A. I sure can. We see the top figure in 1016, we
17 see a collection of red and infrared LEDs pointed in the
18 center. They emit light to the tissue. There are
19 separators between them called optical shields, and there
20 are a collection of photodiodes that collect the light after
21 it has been through the tissue, and they make a
22 determination of physiological parameters based on the
23 optical light received by the photodiodes.

24 Q. Slide 7-17.

25 Let's look at limitation 7A. In Mendelson, what

1 are the LEDs and photodiodes mounted on?

2 A. As shown in Fig. 1016B of Mendelson, they are on
3 a ceramic substrate.

4 Q. Is that another name for a circuit board?

5 A. Also a circuit board or a printed circuit board.
6 Thank you.

7 Q. Were circuit boards with thermal cores known
8 before the '127 patent?

9 A. Yes, they have been known for many years, before
10 this patent.

11 Q. Can we see RDX-7-18?

12 Professor, what is this document?

13 A. This is a handbook called the "Multilayer Printed
14 Circuit Board" by Scarlett.

15 Q. And if we could turn to RDX-7-19.

16 Turning to Fig. 24.30 of Scarlett, what does this
17 show?

18 A. In Fig. 24.30 at 122 it shows the cross-section
19 of a metal core. We see there is a reference to an aluminum
20 core that, as Scarlett describes, provides thermal
21 management to the core.

22 Q. Is Scarlett RX-397, if you look at the lower
23 right-hand corner of the slide?

24 A. Exactly right, RX-397 at 122.

25 Q. Can we have slide RDX-7-17?

1 Does Mendelson render obvious the, quote, thermal
2 mass?

3 A. Yes. So we see that the LEDs and photodiodes are
4 mounted on a printed circuit board. We know that there are
5 electrical connections. That's really the main -- main way
6 of bringing electricity to LEDs and photodiodes. And these
7 connections would provide thermal connectivity.

8 One of ordinary skill in the art would know that
9 you could implement this in a multilayer fashion and would
10 also know that, for example, using the concepts in Scarlett
11 as was very well-known, one could add metal core or thermal
12 core for better management.

13 Q. What do you understand Mr. Goldberg alleges as a
14 thermal mass in Apple Watch?

15 A. He alleges the metal layers of printed circuit
16 boards of the Apple Watches as the thermal mass.

17 Q. Does Mendelson disclose such metal layers?

18 A. Yes, we see that in Fig. 1016 that there are
19 metal layers in Mendelson.

20 Q. What does Mr. Goldberg say is a thermal mass in
21 the Masimo current rainbow« sensors?

22 A. He refers to the metal layers and the ceramic in
23 the current sensor.

24 Q. Does Mendelson disclose such ceramic layers with
25 metal areas?

1 A. Yes. We see that in Fig. 1016, and the
2 corresponding description.

3 Q. Now can we have RDX-7-20?

4 Does Mendelson disclose limitation 7B?

5 A. Yes. At RX-458, Mendelson in Fig. 1016, if we
6 look at that figure, on top we see there is a red and
7 infrared LEDs, and obviously through electrical connection
8 they are materially coupled to the thermal mass.

9 Q. Can you explain how Mendelson renders obvious
10 LEDs thermally coupled to the thermal mass?

11 A. Surely. Because of electrical connection, we
12 know that the LEDs are connected by wires to the printed
13 circuit board, and that's the thermal connection.

14 Q. Is there any dispute between you and Mr. Goldberg
15 on this limitation regarding Mendelson's disclosure of a
16 plurality of LEDs in a substrate?

17 A. No.

18 Q. Can we have 7-21?

19 Does Mendelson disclose limitation 7C?

20 A. Yes, it does. Again, at RX-458, Mendelson in
21 Fig. 1016 discloses red and infrared LEDs, and we know that
22 these are a plurality of operating wavelength -- multiple.

23 Q. Is there any dispute between you and Mr. Goldberg
24 on this limitation?

25 A. None.

1 Q. Can we have slide 7-22?

2 Does Mendelson render obvious limitation 7D?

3 A. Looking at RX-458 at 24, that's Fig. 1016, in the
4 same manner that I described earlier, in previous
5 limitation, LEDs and photodiodes are mounted on a printed
6 circuit board, and one would know that you could readily
7 implement these in multilayer and add thermal core to it.

8 Q. Next slide, 7-23.

9 Does Mendelson in combination with Webster
10 disclose limitation 7E?

11 A. Yes. If we look at the textbook we looked at
12 earlier, Webster at RX-35, at 85, it says, one way to
13 compensate for LED temperature changes is to have a
14 temperature sensor built into the probe along with the LEDs
15 and photodiodes.

16 Q. Why do you conclude from that that Webster
17 renders obvious the temperature sensor being thermally
18 coupled to the alleged thermal mass?

19 A. Because it says that the temperature sensor is
20 going to be built into the probe along with the LEDs, and we
21 know there are going to be electrical connection for a
22 temperature sensor to work.

23 Q. Slide 7-24.

24 Looking at limitation 7F, does Webster render
25 obvious a temperature sensor capable of determining a bulk

1 temperature for the thermal mass?

2 A. Yes. If we look at RX-35 at 85, Webster
3 discusses that there is a shift in LED peak wavelength due
4 to change in temperature, and that can cause error in SpO2
5 reading, and it says one way to compensate for that is for
6 LEDs temperature changes to have a temperature sensor built
7 into the probe.

8 Of course, one of ordinary skill would know that,
9 to take temperature measurement, in order to get the bulk
10 temperature in multiple locations, you would just add
11 multiple temperature sensors of Webster.

12 Q. What --

13 A. And obvious to do that.

14 Q. What does Mr. Goldberg say measures a bulk
15 temperature in Apple Watch?

16 A. He points to the thermistor in the Apple Watches.

17 Q. Does Webster teach such a temperature sensor?

18 A. We see that in section 553 at 85 of Webster, that
19 does exactly that.

20 Q. Slide 7-25, please.

21 Does Webster disclose the operating wavelengths
22 of the LEDs dependent on the bulk temperature of the alleged
23 thermal mass?

24 A. That's a fact of physics that has been known for
25 many years, but at RX-35, both at 74 and 83, Webster states

1 that a wavelength depends on the so-called forbidden energy
2 gap, and energy gap is dependent on temperature. So
3 wavelength is dependent on temperature via the energy gap.

4 Q. Slide 7-26.

5 Does Mendelson disclose limitation 7G?

6 A. Looking at RX-458 at 24, that's, again, Fig. 1016
7 of Mendelson, we see there are a collection of photodiodes
8 shown, and that's exactly what the limitation requires.

9 Q. Does Mr. Goldberg dispute that?

10 A. No.

11 Q. Next slide, please.

12 Does Mendelson disclose limitation 7H?

13 A. Yes, that is also undisputed. Mendelson at
14 RX-458 at 21 shows an ear oximeter from Hewlett-Packard. It
15 shows that the optics is collected at the ear location. It
16 goes through a number of processing, such as A to D on a
17 central processor, and, finally, the digital display shows
18 the SpO₂, the oxygen saturation.

19 Q. Slide 7-28.

20 Does Mendelson in combination with Webster teach
21 claim 9?

22 A. They do. First of all, our macro here, RX-419 at
23 3, talks about what thermistors are. They have been known
24 for many years as a resistive circuit, and Yamada and other
25 references, RX-381, specifically talks about a thermistor

1 that is a metal-resistant temperature detector.

2 Q. Slide 7-29.

3 What fields are Mendelson and Webster related to?

4 A. They are in the same field as the '127 patent,
5 physiological monitoring systems and devices.

6 Q. Would a POSITA have been motivated to combine
7 Mendelson with Webster?

8 A. Very much so. If we look at RX-35, Webster, and
9 RX-458 at 24 Mendelson, one would be motivated to combine
10 the two.

11 Q. Why is that?

12 A. Because would know that you can improve the
13 functionality of what Mendelson talks about by bringing a
14 temperature sensor to improve the wavelength values of
15 Mendelson.

16 Q. Relatedly, would a POSITA have had a reasonable
17 expectation of success in incorporating a temperature sensor
18 of Webster into Mendelson?

19 A. Very much so. These temperature sensors have
20 been known for several hundred years. Very simple devices
21 and relatively low-tech. So including them in Mendelson
22 would have been straightforward, and there would have been a
23 reasonable chance of success.

24 Q. So does Mendelson in combination with Webster
25 disclose claim 9 of the '127 patent?

1 A. Yes, it would.

2 Q. Can we switch now to your opinion about Yamada
3 and Noguchi?

4 A. Absolutely.

5 Q. May we have slide 7-30?

6 Actually slide 7-31, please.

7 On the screen is RX-381. What is that document?

8 A. This is the Yamada reference, Japanese patent
9 application.

10 Q. When was it published?

11 A. This was published, the priority date it says is
12 2003. I can't find the publication right now. Because it's
13 not zoomed in, I have a hard time seeing it.

14 Q. That's okay, Professor.

15 A. Patent application is from 2004, as I see under
16 21.

17 Q. What does the Yamada patent application discuss?

18 A. It discusses a physiological monitoring system.
19 It's a wrist-worn device with a sensor placed on the
20 fingertip of a user.

21 Q. Can we put on the screen 7-32 and RX-353?

22 What is RX-353?

23 A. This is also a patent application by Noguchi. It
24 was filed in 1992 and granted in '94. It relates the
25 wavelength of an LED to temperature variation, among other

1 things.

2 Q. Next slide, please.

3 Does Yamada disclose the preamble of claim 7?

4 A. Yes, that's undisputed. If we look at RX-41 and
5 Figs. 1 and 5, we see that both in the figure and the
6 corresponding text the notion of pulse oximeter is
7 disclosed.

8 Q. Slide 7-34.

9 Does Yamada render obvious limitation 7A?

10 A. Yes. We'll see that from Fig. 5 RX-381, there
11 are LEDs and photodetectors mounted on the printed circuit
12 board. We know that there is electrical connection among
13 them and to the power supply to make them work. The
14 electrical connection, the wires provide thermal
15 connectivity.

16 Furthermore, a POSITA would know that you can
17 readily implement this in a multilayer fashion, also add
18 thermal cores in order to provide better thermal management
19 in the circuit.

20 Q. Next slide, please.

21 Does Yamada disclose limitation 7B?

22 A. Yes. Looking at, again, RX-381, Fig. 5 at 43,
23 both Fig. 5 and the corresponding text talks about the first
24 light-emitting component, an LED, and a second
25 light-emitting component, another LED.

1 Q. Does Yamada disclose LEDs thermally coupled to
2 the thermal mass?

3 A. Yes. For the same reason mentioned before, there
4 is an electrical connection between the LEDs and the rest of
5 the circuit and the metal of the circuit board, and that's
6 what provides thermal coupling.

7 Q. Does Mr. Goldberg dispute that Yamada teaches the
8 light-emitting sources in a substrate?

9 A. No.

10 Q. Slide 7-36, please.

11 Does Yamada disclose limitation 7C?

12 A. This is also undisputed. If we look at RX-381 at
13 43, we'll see that Yamada specifies the light of a first
14 wavelength, maybe, for example, red light, the light of a
15 second wavelength, maybe, for example, near infrared, and we
16 know red and infrared operate at different wavelengths.

17 Q. Slide 7-37.

18 How about limitation 7D, is that disclosed by
19 Yamada?

20 A. Very similar to the discussion I had before, yes,
21 LEDs and photodiodes are implemented in a printed circuit
22 board, and the electrical connection provides the thermal
23 mass. A POSITA would know that you can do this in a
24 multilayer fashion, and could add a thermal core of, for
25 example, Scarlett, to provide better thermal management.

1 Q. Slide 7-38.

2 Does Yamada disclose limitation 7E?

3 A. Very much so. Looking at RX-381 at Fig. 5, 109,
4 paragraph 109, Yamada says that a temperature sensor may be
5 attached to the light probe 1, and attachment we know, among
6 other things, requires an electrical attachment, and that's
7 what provides thermal coupling to the thermal mass.

8 Q. Slide 7-39.

9 Does Yamada disclose a temperature sensor capable
10 of determining a bulk temperature for the thermal mass?

11 A. Yes. Yamada RX-381 at, again, 109, says that a
12 temperature sensor may be attached to the light probe, and a
13 temperature sensor, for example, could be attached to the
14 surface. And one of ordinary skill in the art would know
15 that you could easily use multiple temperature sensors in
16 order to do some sort of a bulk temperature of the thermal
17 mass.

18 Q. What does Masimo accuse of meeting limitation 7F
19 in Apple Watch?

20 A. Also the thermistor in Apple Watches is what
21 Masimo accuses.

22 Q. Does Yamada teach that?

23 A. As we saw in 109, it talks about the temperature
24 sensor here, so yes.

25 Q. Slide 7-40.

1 Does Noguchi teach a temperature sensor?

2 A. Yes. Noguchi at RX-353 and RX-353, both in
3 column 1 and 2, talks about the fact that there is a
4 comprising temperature measurement means for measuring the
5 temperature of an LED.

6 Later, Noguchi says that a plurality of LEDs and
7 a plurality, multiple temperature measurement can be
8 utilized in this invention, and it goes talking about the
9 relation between the two. So, yes, absolutely.

10 Q. How would a skilled artisan have used Noguchi's
11 teaching in a pulse oximeter like Yamada?

12 A. It would have taken the notion of the fact that
13 LED wavelength is a function of temperature and included
14 that in Yamada to provide better values for wavelength
15 estimation.

16 Q. Slide 7-41.

17 Would a POSITA have found it obvious at the time
18 of the '127 application to combine Yamada with Noguchi?

19 A. Very much so. They are both -- Yamada is related
20 to pulse oximeter and physiological measurement. Noguchi
21 talks about the impact of heat on temperature variation. So
22 one would be very motivated to combine the two.

23 Q. Why would one be motivated to combine Yamada with
24 Noguchi?

25 A. Basically because of the notion of temperature

1 variation on wavelength would improve the functionality of
2 Yamada.

3 Q. Relatedly, would a POSITA have had a reasonable
4 expectation of success combining in a Yamada with Noguchi?

5 A. Very much so. Again, this is a notion of a
6 temperature sensor that has been known for several hundred
7 years, very low-tech device, and would have been easily
8 added to Yamada's system.

9 Q. 7-42, please.

10 Does Yamada disclose limitation 7G?

11 A. Yes. Looking at RX-318 at Fig. 562, Yamada
12 states, and also in Fig. 5 it states, that a portion of the
13 light that traverses body tissue is received by the
14 light-receiving component, and that's undisputed.

15 Q. Slide 7-43.

16 Does Yamada disclose limitation 7H?

17 A. Yes, that's also undisputed. RX-381, both at 62
18 and 65, talks about the strength signal for the light that
19 is sent to the analysis component, and it talks about the
20 CPU that performs the corresponding analysis.

21 Q. Slide 7-44, please.

22 Does Yamada teach claim 9?

23 A. That's undisputed. RX-381 at 111 talks about a
24 thermistor that performs the temperature measurement.

25 Q. Next slide, please.

1 Did you also conduct an analysis of secondary
2 considerations of nonobviousness for the '127 patent?

3 A. Yes, I have.

4 Q. And what factors did you consider?

5 A. Long-felt but unmet need, commercial success,
6 industry praise, copying, failure of others, unexpected
7 results, and industry skepticism.

8 Q. Slide 7-46.

9 Did you find the existence of a long-felt but
10 unmet need that was satisfied by the '127 patent?

11 A. No, because, first of all, Webster says that
12 these things were known as far back as '80s and even before
13 that, so the notion of various components of the
14 physiological parameters, such as LEDs, et cetera, was
15 disclosed by Webster. The notion of thermal mass for
16 improving thermal connectivity was disclosed, for example,
17 at RX-397 at 122, Fig. 24.3.

18 Q. Slide --

19 A. Also, sorry, Webster was disclosed at RX-35, as
20 we discussed earlier.

21 Q. Slide 7-45.

22 Did you find any evidence of commercial success
23 indicative of nonobviousness?

24 A. I have not seen any commercial success related to
25 this patent by Masimo.

1 Q. How about industry praise, did you find any
2 evidence of that?

3 A. I have not, not for Masimo, no.

4 Q. Any evidence that you saw of copying, failure of
5 others, unexpected results, or industry skepticism?

6 A. I haven't seen any of that, especially going
7 through the hearing this week.

8 Q. Let's change subjects. Let me turn to your
9 noninfringement opinion with respect to claim 9 of the '127
10 patent.

11 Can we have slide 7-48?

12 At a high level, can you tell us the reasons for
13 your opinion?

14 A. Yes. At a high level, that accused products do
15 not have a thermal mass, also they do not determine bulk
16 temperature for the thermal mass.

17 MR. SELWYN: Your Honor, I think at this point we
18 can turn to the Apple and Masimo confidential record.

19 (Whereupon, the hearing proceeded in confidential
20 session.)

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3 MR. SELWYN: May I proceed?

4 JUDGE BHATTACHARYYA: Yes.

5 BY MR. SELWYN:

6 Q. Could we have please RDX-7-79?

7 Professor, can we turn now to the '745 patent?

8 A. Absolutely.

9 Q. With reference to Fig. 7A, can you briefly
10 describe the '745 patent?

11 A. Yes. '745 patent talks about a physiological
12 monitoring system, and Fig. 7A shows a combination of LEDs
13 and photodetectors. If you go to the next slide, I have
14 more details on that, I believe.

15 Q. Slide 7-80.

16 A. Exactly. Thanks very much.

17 Fig. 7A and companion Fig. 7B shows that there is
18 a light emitter highlighted with label 702. It emits light.
19 That light goes through a diffuser, diffuser 704. And the
20 light goes through the tissue as shown with red arrows. And
21 that comes back to a photodetector, a light detector 710.

22 And we see that the shape of the light as it
23 leaves the diffuser is an annular shape, and we can perhaps
24 better see that in Fig. 7B in the highlighted blue part.

25 Q. Slide 7-81, please.

1 Who was a person of ordinary skill in the art of
2 the '745 patent?

3 A. In my opinion, one of ordinary skill in the art
4 would be somebody with working knowledge of physiological
5 monitoring technologies, would have a Bachelor of Science in
6 an academic discipline emphasizing the design of electrical,
7 computer, or software technologies, in combination with
8 training or at least one or two years of related work
9 experience with capture and processing of data or
10 information, including but not limited to the physiological
11 monitoring technologies.

12 And, obviously, if somebody had a Master of
13 Science in a relevant academic discipline could have maybe
14 less than a year of related work experience in the same
15 discipline.

16 Q. Next slide.

17 What reference or combinations of references are
18 you relying upon for your opinion regarding invalidity for
19 the '745?

20 A. I have three. The first one is the Apple Watch
21 Series 0; second one is Iwamiya in combination with
22 Sarantos; and, finally, Iwamiya in combination with Sarantos
23 and then Venkatraman.

24 Q. Beginning with Apple Watch Series --

25 JUDGE BHATTACHARYYA: Mr. Selwyn, could we take

1 our afternoon break now?

2 MR. SELWYN: Of course.

3 JUDGE BHATTACHARYYA: We're in recess for 15
4 minutes.

5 (Whereupon, the proceedings recessed at 3:33
6 p.m.)

7 (In session at 3:48 p.m.)

8 MR. SELWYN: Good afternoon.

9 JUDGE BHATTACHARYYA: We are back on the record.

10 MR. SELWYN: I believe we're on the public record
11 at the moment, Your Honor. May I proceed?

12 JUDGE BHATTACHARYYA: Yes, please go ahead.

13 BY MR. SELWYN:

14 Q. Could we have RDX-7-83?

15 Professor Sarrafzadeh, on the screen is RX-23.
16 Do you recognize that document?

17 A. I do. It's a press release from Apple dated
18 April 9, 2015, and it says it's available for purchase
19 online by April 24, 2015.

20 Q. What does that document say about the date that
21 Apple released the Series 0?

22 A. It says that the date is for sale is April 24,
23 2015.

24 Q. How did you conduct your analysis of Apple Watch
25 Series 0?

1 A. I looked at various documents available, I also
2 talked to and heard a number of Apple engineers in that
3 regard.

4 Q. Did you speak with Dr. Venugopal?

5 A. I did, yes.

6 MR. SELWYN: Your Honor, we have to move, I
7 think, to the Apple confidential record now.

8 (Whereupon, the hearing proceeded in confidential
9 session.)

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3 MR. RE: Thank you.

4 BY MR. SELWYN:

5 Q. What conclusions did you reach with respect to
6 Iwamiya in combination with Sarantos?

7 A. That they make the claims obvious.

8 Q. Can we have slide 7-99?

9 Does Iwamiya disclose the preamble?

10 A. It does. That's undisputed, in RX-130, the
11 abstract, Iwamiya says an optical biological information
12 detecting apparatus, and that discloses it.

13 Q. Slide 7100.

14 Does Iwamiya disclose limitation 1A of the '745
15 patent?

16 A. That is also undisputed, in RX-130, and Fig. 4,
17 talks about the light-emitting unit, and in Fig. 4, I have
18 highlighted it as number 6 and colored red.

19 Q. Slide 7-101.

20 Does Iwamiya disclose limitation 1B?

21 A. It does. Again, looking at RX-130, column 6 of
22 the patent, it talks about these annular light guide 7, and
23 they annularly diffuse and irradiate the observation light,
24 and I have annotated that with the annular shape under the
25 figure.

1 Q. Does Mr. Goldberg dispute is that?

2 A. No.

3 Q. Next slide, please.

4 Is limitation 1C disclosed by Iwamiya?

5 A. 133 and column 4 -- column 8 and 14 of the patent
6 do talk about a silicon photodetector, yes.

7 Q. Slide 7-103.

8 Does Iwamiya in combination with Sarantos
9 disclose limitation 1D?

10 A. Sure. Surface comprising a dark-colored coating,
11 Iwamiya talks about light shielding, that shields the light.
12 One option for that is, indeed, a dark-colored coating. In
13 addition, Sarantos, specifically in RX-366 and Fig. 22,
14 talks about the dark-colored coating, black or otherwise,
15 rendered opaque, and the Iwamiya part is from RX-1130.

16 Q. Does Iwamiya disclose limitation 1E? If we go to
17 slide 7-104.

18 A. It does. RX-130, Fig. 3, columns 6 and 7 talks
19 about the first and second reflection layer, 13 and 15, and
20 we see that they provide the shielding that's required in
21 the claim, and that's undisputed.

22 Q. Next slide.

23 Does Iwamiya disclose limitation 1F?

24 A. Yes, at RX-130 and Fig. 10 in column 9, it is
25 undisputed that a CPU is shown and the CPU performs

1 biological information calculation.

2 Q. Slide 7-106, please.

3 Does Iwamiya render obvious claim 9 of the '745
4 patent?

5 A. Yes. RX-130 talks about display unit of Iwamiya,
6 also at column 9, that displays a measurement result of the
7 biological information. Oxygen saturation is a biological
8 information.

9 Q. Slide 7-107.

10 Alternatively, does Iwamiya in combination with
11 Sarantos disclose claim 9?

12 A. Yes. As shown in RX-366, Sarantos talks about a
13 heart rate monitor, and it says it can do other
14 physiological parameters such as blood oxygenation level.

15 Q. Would a POSITA have found it obvious to combine
16 Iwamiya and Sarantos?

17 A. Yes. They are both physiological monitoring
18 devices, as shown in RX-130 and RX-366, and they are in the
19 same area '745 patent. Furthermore, they are actually both
20 wrist-worn devices.

21 Q. Slide 7-109.

22 Would a POSITA have been motivated to combine the
23 dark-colored coating of Sarantos into Iwamiya at the time of
24 the application for the '745 patent?

25 A. Yes. Looking at RX-366, RX-130, and RX-35, we

1 see that the shielding that Iwamiya talks about can be
2 enhanced with the dark-colored coating of Sarantos, and
3 Webster further talks about black materials that are used to
4 prevent transmission of light.

5 Q. Would a POSITA have reasonably expected success
6 in combining the dark-colored coating of Sarantos with
7 Iwamiya at the time of the application for the '745 patent?

8 A. Absolutely. These are low-tech additions. This
9 dark-colored coating and also low cost, so one would have a
10 reasonable success of adding it and motivation.

11 Q. Slide 7-110.

12 Would a POSITA have been motivated to combine
13 Sarantos teaching of a blood oxygen measurement with
14 Iwamiya's sensor at the time of the application for the '745
15 patent?

16 A. Very much so. If you look at RX-130 and RX-366,
17 Sarantos adds the fact that a PPG, such as blood oxygenation
18 level can be added, and that would enhance, by way of
19 example, what the biological information of Iwamiya is.

20 Q. Would a POSITA have reasonably expected success
21 in combining Sarantos' teaching of making a blood oxygen
22 measurement with the Iwamiya sensor at the time of the
23 application for the '745?

24 A. Yes. As described in Sarantos and as we saw in
25 the literature way before that, one would have success of

1 combining Sarantos with Iwamiya.

2 Q. Can we turn to slide 7-111?

3 And do you see on the screen RX-368?

4 A. Yes.

5 Q. What is that document?

6 A. RX-368 is a patent with the first inventor

7 Venkatraman.

8 Q. What's that patent about generally?

9 A. Generally about the wearable heart rate sensor or
10 monitor.

11 Q. Is it a wrist-worn wearable?

12 A. Yes, it is.

13 Q. Can we turn to the next slide, 7-112?

14 What conclusion did you reach with respect to
15 Iwamiya in with Sarantos and Venkatraman in the validity of
16 claims 18 and 27?

17 A. I believe their combination make 18 and 27
18 obvious.

19 Q. Can we have slide 7-113?

20 Does claim 15 differ from claim 1?

21 A. There are actually a lot of similarities, but, as
22 shown in RDX-7113, there are some differences that I've
23 highlighted in blue.

24 Q. Slide 7-114, please.

25 Does Iwamiya disclose the preamble of claim 15?

1 A. That's undisputed. I discussed this before.
2 Iwamiya in RX-130 talks about a biological information
3 apparatus.

4 Q. Next slide.

5 Does Iwamiya disclose limitation 15A?

6 A. That's undisputed. Same discussion as 1A. So in
7 RX-130, and also Fig. 4 and column 5, a wrist-worn device is
8 shown and discussed.

9 Q. Slide 7116, please.

10 Does Iwamiya disclose limitation 15B?

11 A. Again, this is undisputed. I discussed that in
12 relation to 1B. In RX-130 and Fig. 4, column 6, we see that
13 about material that changes the shape of light into an
14 annular light guide using a light, annular light guide, unit
15 7.

16 Q. Slide 7-117.

17 Is limitation 15C disclosed by Iwamiya?

18 A. Yes. RX-133 shows that Figs. 2, 3, columns 6 and
19 7, Fig. 3 shows the reflection layer, and a top view of that
20 is shown in Fig. 2, where we see the circular shape. This
21 is undisputed.

22 Q. Slide 7-118.

23 Does Iwamiya disclose limitation 15D?

24 A. Yes. If we look at RX-130 and the corresponding
25 figure and columns, although I believe this limitation is

1 indefinite, but using Masimo's interpretation, there are a
2 number of photodiodes shown, and they would have, according
3 to Masimo's interpretation, they would be arranged in a
4 shape that corresponds to the shape of the portion of tissue
5 measurement that is encircled by the light block.

6 Q. Slide 7-119.

7 Does Iwamiya disclose limitation 15E?

8 A. Yes. RX-130 shows that this is undisputed, I
9 discussed this before, a photodiode is shown.

10 Q. Next slide.

11 Does Iwamiya disclose limitation 15F?

12 A. Yes, that is also undisputed. Looking at 130, we
13 see the photodiode and the LEDs are on the same side of the
14 tissue. So that's the reflectance measurement
15 configuration.

16 Q. What figure are you referring to?

17 A. Fig. 4 of it.

18 Q. Can we have slide 7-121?

19 Does Iwamiya disclose limitation 15G?

20 A. Yeah, that's undisputed. I went through this in
21 1E. So RX-133 in Fig. 3 and column 6 and 7 show that. We
22 see the reflection layer 13 and 15 are what provides the
23 optical isolation.

24 Q. Next slide, please.

25 Is limitation 15H shown by Iwamiya?

1 A. Sure. That's also undisputed, same as 1F, we see
2 that in RX-133, Fig. 10 shows a processor and column 9
3 discusses what the CPU does to do biological information
4 calculation.

5 Q. Can we have slide 7-123?

6 Does Venkatraman disclose limitation 15I?

7 A. Yes, that is shown in RX-368 column 31.
8 Venkatraman shows a secondary device that can be a generic
9 device, and it talks about the monitoring device that may
10 transmit data to and from a secondary electronic device,
11 such as a cell phone, such as an iPhone.

12 Q. Could we go back for one second to RDX-7-119?

13 Does Iwamiya teach multiple photodiodes?

14 A. It does. As I mentioned, in column 8 and 14, it
15 talks a plurality of light receiving units 9. That's
16 multiple photodiodes.

17 Q. And rolling forward to slide 7-124, would a
18 POSITA have found it obvious to combine Iwamiya with
19 Venkatraman at the time of the '745 application?

20 A. Yes. It was as shown in RX-368, Fig. 7, RX-130
21 at 25, and 9, the wristwatch of Venkatraman is also -- there
22 is also a wristwatch in Iwamiya, so one would be able to
23 combine the two.

24 Q. Slide 7-125.

25 Would a POSITA have been motivated to combine

1 Iwamiya with Venkatraman at the time of the '745
2 application?

3 A. Very much so. As shown in RX-368 and RX-130,
4 column 57 and Fig. 4 respectively, the fact that a device
5 can be connected to an external smartphone and other devices
6 was known, and, therefore, taking Venkatraman and enhanced
7 the external connection of Iwamiya would have been obvious.

8 Q. Would a POSITA had a reasonable expectation of
9 success in combining Iwamiya with Venkatraman?

10 A. Very much so, because adding these external
11 devices was known for quite a bit of time.

12 Q. Slide 7-126.

13 Does Iwamiya render obvious claim 18?

14 A. Yes. That's same as claim 9. In RX-130, column
15 9, we see there is a display unit that displays a
16 measurement of the biological information, and oxygen
17 saturation is a biological information.

18 Q. Slide 7-127.

19 Does Iwamiya together with Sarantos disclose
20 claim 18?

21 A. Yeah. I discussed that in relation to claim 9.
22 So RX-366 at 13, Sarantos talks about a heart rate and other
23 parameters such as a blood oxygenation level.

24 Q. Would a POSITA have found it obvious to combine
25 Sarantos' teaching of a blood oxygen measurement with

1 Iwamiya sensor at the time of the '745 patent?

2 A. Very much so, yes.

3 Q. Why?

4 A. Because they are both related to monitoring, and
5 adding the sensor will add extra functionality there.

6 Q. What would have motivated a POSITA to combine
7 Sarantos' teaching of a blood oxygen measurement with the
8 Iwamiya sensor at the time of the '745 patent?

9 A. By way of example, because Sarantos talks about
10 blood oxygenation level, and that would be one additional
11 parameter that Iwamiya can use.

12 Q. And would a POSITA have had a reasonable
13 expectation of success in that combination?

14 A. Yes, because as I discussed earlier, the notion
15 of doing blood oxygenation has been known according to
16 Webster for -- since early '80s or so.

17 Q. Slide 7-128, please.

18 Can we look together at claim 27? When you
19 discussed Iwamiya, was your analysis for limitation 1
20 Preamble through 1F the same as your analysis for
21 limitations 20 Preamble through 20F?

22 A. Yes.

23 Q. And is that true for Iwamiya in combination with
24 Sarantos as well?

25 A. That's correct.

1 Q. So let's go to limitation 20G, and can I have
2 slide 7-129?

3 Does Iwamiya in combination with Venkatraman
4 disclose limitation 20G?

5 A. Yes. RX-368 in various columns shows that
6 Venkatraman talks about a smartphone that has a capacity of
7 touch sensing. We know smartphones have storage devices,
8 network interfaces, and all other requirements of 20G.

9 Q. Would a POSITA have found it obvious to combine
10 Iwamiya with Venkatraman?

11 A. Yes. As I said, adding these external devices,
12 such as a cell phone, was done for quite a bit and was
13 obvious to do so.

14 Q. What would have motivated a POSITA to combine
15 Iwamiya with Venkatraman?

16 A. The fact that you can add these external devices
17 for better display and extra information gathering as
18 discussed in the combination.

19 Q. Would a POSITA have reasonably expected success
20 in combining Iwamiya with Venkatraman?

21 A. Yes. This notion of adding external devices was
22 tested and done a number of times and a number of years
23 before this.

24 Q. Slide 7-130, please.

25 Does Iwamiya in combination with Sarantos

1 disclose claim 27?

2 A. Yes, it does. In RX-366, that's Sarantos, column
3 13 talks about that it might be desirable to include a
4 separate light-emitting device that are each able to emit
5 different wavelengths. That's the number of wavelengths
6 that's claim 27 discusses.

7 Q. Would a POSITA have been motivated to combine
8 Sarantos' teaching of emitting multiple wavelengths with
9 Iwamiya's sensor at the time of the '745 patent?

10 A. Yes. In fact, because it allows these multiple
11 wavelengths, they are both in the same area of biological
12 monitoring, one would be motivated to combine them.

13 Q. Would a POSITA have reasonably expected success
14 in combining Iwamiya with Sarantos?

15 A. Yes, because, again, adding these multiple
16 wavelengths in a biological monitoring device was known, as
17 Webster said, for many years.

18 Q. Turning to secondary considerations and slide
19 7-131, what conclusion did you reach with respect to
20 long-felt but unmet need?

21 A. My conclusion is that there has not been a
22 long-felt but unmet need. As we saw today by Webster,
23 conventional pulse oximeters were known, photodiodes were
24 known, LEDs were known, materials that change the shape of
25 light were known.

1 As we discussed, for example, in Iwamiya,
2 processor for computations were known, light blocks have
3 been discussed and known for many years, and optical
4 shielding using dark-colored coating was also disclosed and
5 known.

6 Q. Slide 7-132.

7 What conclusion did you reach with respect to
8 alleged commercial success?

9 A. I believe there has been no success between the
10 accused Apple Watches and the claimed invention shown.

11 Q. What was your conclusion with respect to the
12 remaining secondary considerations?

13 A. I have not shown any evidence of the other
14 secondary considerations.

15 Q. Can we have slide 7-133?

16 What conclusion did you reach regarding the
17 validity of claims 1 and 20 of the '745 patent under section
18 112?

19 A. I think there is a lack of written description.
20 What we see in 1B and 20B are disclosed in 7A, a
21 physiological monitoring device. The notion of dark-colored
22 coating is in a different embodiment, Fig. 3, as we can see
23 in '745 patent, respectively, Fig. 7A and Fig. 3.

24 Q. Why did you find a lack of written support?

25 A. Because each of them, 1B and 1D, corresponds to a

1 different embodiment, and there is no description on how to
2 combine these embodiments in the description of the patent.

3 Q. May we have slide 7-134?

4 What conclusion did you reach regarding the
5 validity of claim 15 from the perspective of the
6 definiteness requirement?

7 A. I believe, because of -- because of 15D
8 limitation, the claims are indefinite, especially the part
9 talking about the plurality of photodiodes that are arranged
10 in an array, having a special configuration corresponding to
11 a shape of the portion of tissue measurement site encircled
12 by the light block.

13 So here I've shown four photodiodes in purple
14 color in RX-7134, and obviously there are a number of shapes
15 that could correspond to these four photodiodes. It can be
16 an X shape, it could be a triangle, it could be a square, it
17 could be many other shapes. So it's not obvious what the
18 shape is.

19 Q. Let's switch gears just a little bit to your
20 noninfringement opinion for the '745 patent.

21 Can we have slide 7-136?

22 A. Yes.

23 Q. Why is claim 9 of the '745 patent in your opinion
24 not infringed?

25 A. Basically for two reasons. And I believe there

1 are no materials that receive the lights having the same
2 shape as light emitted by LEDs, i.e., the first shape.
3 Also, there is no material that are configured to change the
4 first shape into a second shape.

5 Q. In the claim language, why does the material need
6 to receive light in the same shape that was emitted by the
7 emitter?

8 A. If we look at by way of example claim 1 --
9 limitation 1A, it says the LED light-emitting diodes emit
10 light in a first shape. Then if we look at limitation 1B,
11 it says the material configured to change different shape
12 into a second shape. So it refers back to the shape that it
13 was emitted. These are the same first shape obviously. The
14 same analysis for 20A and 20B.

15 Q. Does claim 27 also require the material to
16 receive light in the same shape that was emitted by the
17 emitters?

18 A. Yes.

19 Q. Does claim 27 also require the material to change
20 the first shape into a second shape?

21 A. Similarly, yes.

22 Q. Turning now to slide 7-137, can you explain the
23 claimed material in the context of Fig. 7A and B?

24 A. Yes. Looking at '745, Fig. 7, A and B, we see
25 there is a light emitter labeled 702 that emits light in a

1 local shape. That goes through a diffuser 704, and the
2 diffuser has an annular shape, and that's better seen in
3 Fig. 7B, the annular shape.

4 So it takes the light that is emitted from LED
5 and changes that to an annular shape. So that's the change
6 of shape.

7 And we see the shape that is received that is
8 emitted from LED, that exact same shape is received by the
9 diffuser, because they abut each other, they touch each
10 other.

11 MR. SELWYN: Your Honor, may we go onto the Apple
12 confidential record now, please.

13 JUDGE BHATTACHARYYA: Moving onto the Apple
14 confidential record.

15 (Whereupon, the hearing proceeded in confidential
16 session.)

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1 O P E N S E S S I O N

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3 BY MR. RE:

4 Q. Okay. So you did consider the listing of
5 Masimo's awards and they were cited to as a document
6 reviewed in your expert report, right?

7 A. I have looked at some awards of Masimo, yes.

8 Q. And you decided to dismiss those because, in your
9 view, none of the awards could be attributed in any way to
10 Masimo's claimed inventions, right?

11 A. Because Masimo did not show that, correct.

12 Q. I want to show you what the document is, CX-1375.
13 This is the document you dismissed because Masimo didn't
14 show something. Did I understand your testimony?

15 A. Repeat your question, please.

16 Q. Does this look familiar to you, this document?

17 A. Yes, I've seen this before.

18 Q. Right. And you decided to dismiss them for the
19 reasons you gave on the record, right?

20 A. No. When I was at Motorola, they had 20,000
21 patents. It doesn't mean each product is related to each of
22 those patents. There is no proof from Masimo that these
23 awards are related to the claimed invention. That's what
24 I'm saying.

25 Q. I understand. Okay.

1 A. Thank you.

2 Q. I want to show you what is also one of your
3 slides. You showed some data from sitting with Mr. Scruggs
4 and the other experts, and that's slide RDX-157C. Do you
5 remember this?

6 A. Yes.

7 Q. And you did not pull up the actual statistics of
8 your calculations, correct?

9 A. I don't understand your question.

10 Q. If we go -- do you remember doing an analysis of
11 these numbers for purposes in your -- in your expert report?

12 A. I have discussed them in the joint report, yes.

13 Q. Right. And isn't it true that across the 15
14 groups of reportable comparison values the MightySat and
15 CPX-46C, the SpO2 and pulse rate numbers differed, on
16 average, by 3.5 percent and 2.1 beats per minute, correct?

17 A. That's irrelevant. The absolute difference
18 matters. If I am, during COVID, if my pulse value is 97 --

19 Q. Sir, I didn't ask you if you thought it was
20 relevant. I didn't ask you. I just want to know if my data
21 is correct --

22 A. Say that again.

23 Q. -- what I read to you. If I can direct you to
24 paragraph 25 of your expert report.

25 A. Sure.

1 Q. I just want to know if I can read this into the
2 record because I didn't hear this in your presentation.

3 At the last sentence of your report it says:

4 Across the 15 groups of reportable comparison
5 values, the MightySat and MASITC_P_146 SpO2 and pulse rate
6 numbers differed, on average (in terms of absolute values or
7 their respective differences), by 3.53 percent and 2.1 bpm
8 respectively.

9 Did you write that and that's in your report?

10 A. I did.

11 Q. And that's talking about the data that's on
12 RDX-157, right?

13 A. That's one aspect of the data. There are more
14 important aspects that I just discussed, for example, the
15 absolute difference.

16 Q. If we can pull up your slide.

17 I just want to make sure I have it correct in the
18 record. I think we have -- hold on. There might be a
19 typographical error.

20 I think you have -- I'm being alerted that there
21 might be a typographical error on your slide; isn't that
22 correct?

23 A. I'm not aware of any.

24 Q. Yeah. It says CPX-146 bpm, or is that SpO2? I
25 can't tell.

1 A. That's bpm. On the lower side? That's bpm,
2 beats per minute.

3 Q. Right. But SpO2, right above it --

4 A. Oh, I think those are -- I'll double-check on
5 that, but I think they are bpm's too.

6 Q. Okay.

7 A. Doesn't make sense for SpO2 to be 65. That's a
8 typo. Please correct that, make that bpm. Those are the
9 heart rate numbers.

10 Q. So which one is incorrect? Can you tell?

11 A. Yes. If you look at --

12 Q. The ones --

13 A. The one you have highlighted in yellow, at the
14 bottom, CPX-146 SpO2, that should be bpm. And MightySat
15 SpO2 should be bpm, I believe. I'll double-check that.

16 Q. Right. Those numbers obviously are beats per
17 minute and not SpO2, correct?

18 A. You are correct.

19 Q. Okay.

20 MR. RE: I have no further questions.

21 Thank you, doctor.

22 THE WITNESS: It's a pleasure, sir.

23 MR. SELWYN: Your Honor, I have no redirect.

24 MR. RE: Thank you, doctor.

25 THE WITNESS: Thank you, Your Honor.

1 JUDGE BHATTACHARYYA: Thank you.

2 MR. MUELLER: Your Honor, we call as our next
3 witness Robert Rowe. I believe Your Honor said we would be
4 going a little bit later today because of the NEXT Advocates
5 Program.

6 We call as our next witness Robert Rowe, and
7 Ms. Vreeland will do the examination.

8 MS. VREELAND: Good afternoon. Dr. Rowe, I
9 believe, should be joining us.

10 MS. SWAROOP: Perhaps while we're waiting, we had
11 shipped a binder to Dr. Rowe, and I know we have an
12 agreement that it has to be opened on camera, but I think
13 for purposes of speeding this up, we're happy to have him
14 open our cross binder now so that we can begin the cross as
15 soon as you're done with his direct examination.

16 MS. VREELAND: Absolutely.

17 MS. SWAROOP: Your Honor, I assume we're on the
18 public record now?

19 JUDGE BHATTACHARYYA: Yes, we are.

20 MS. SWAROOP: Thank you.

21 MS. VREELAND: I apologize for the delay. We
22 were in coordination with his counsel, and I believe he will
23 be here momentarily.

24 Your Honor, we had told him that we would call
25 him when his time -- it was hard for us to predict when the

1 cross-examination would be over.

2 JUDGE BHATTACHARYYA: What's the name of
3 Mr. Rowe's counsel?

4 MS. VREELAND: Tim Rawson is Dr. Rowe's counsel.

5 MR. RAWSON: Good morning, Your Honor. This is
6 Tim Rawson on behalf of Dr. Rowe. He is going to be joining
7 us in just a moment.

8 MS. SWAROOP: Mr. Rawson, I don't know if you
9 heard -- this is Sheila Swaroop -- if Dr. Rowe wants to open
10 his cross binder, and if you want to as well, we're happy to
11 have you do that now so that we don't waste time on the
12 record with that.

13 MS. VREELAND: I believe Dr. Rowe has joined us.
14 I'm hoping everybody can see him on screen.

15 MR. RAWSON: One thing I did want to raise,
16 Dr. Rowe had requested to have access to an electronic copy
17 of the '212 patent during his testimony, and I wondered if
18 Your Honor would entertain that notion. I could send him
19 the exhibit that I just received from Masimo's counsel.

20 JUDGE BHATTACHARYYA: If counsel has no
21 objections, that's fine with me.

22 MS. SWAROOP: No objection from Masimo. I
23 believe Apple's counsel also sent him the same exhibit.

24 MS. VREELAND: Certainly no objection from us
25 either.

1 JUDGE BHATTACHARYYA: That's fine.

2 MR. RAWSON: Dr. Rowe, I just sent you an email
3 with that exhibit.

4 JUDGE BHATTACHARYYA: Dr. Rowe, you might be on
5 mute.

6 Welcome, Dr. Rowe. Do you understand that you
7 are under an obligation to testify truthfully here today?

8 THE WITNESS: I do.

9 ROBERT ROWE,
10 having been first duly sworn and/or affirmed
11 on his oath, was thereafter examined and testified as
12 follows:

13 JUDGE BHATTACHARYYA: Thank you. You may
14 proceed.

15 MS. VREELAND: Thank you.

16 DIRECT EXAMINATION

17 BY MS. VREELAND:

18 Q. Dr. Rowe, if you could begin by introducing
19 yourself to Her Honor.

20 A. Yes, Your Honor. I'm Robert Rowe.

21 Q. Dr. Rowe, I'd like to focus my questions today on
22 the Lumidigm patent, but before I do, could you briefly
23 describe your personal background beginning with your
24 educational history?

25 A. Sure. I have a undergraduate degree in

1 mechanical engineering from Kettering University, used to be
2 called General Motors Institute.

3 After receiving the mechanical engineering
4 degree, I went on to University of Arizona, where I attained
5 a Ph.D. in optics with a primary focus on medical imaging,
6 but certainly covering a whole range of optics and physics.

7 From that point, after getting the degree, I took
8 an industrial postdoctoral appointment with Leica, the
9 precision optics company in Switzerland.

10 After that I returned to the United States and
11 had another postdoctoral appointment with Sandia National
12 Laboratories. From there I became familiar with a very,
13 very recent startup that was developing medical measurement
14 technology for measuring glucose and other analytes,
15 noninvasively, optically. So I joined that company. It was
16 called Rio Grande Medical Technology, and later became
17 InLight Solutions.

18 After working there for a number of years, I and
19 some colleagues saw an opportunity to take that technology
20 and use it as a basis for a spinout company developing a
21 novel type of biometrics. That company was called Lumidigm.

22 Lumidigm was successful for a number of years as
23 a startup, transitioning to a product-focused company. In
24 2014 it was acquired by HID Global, which is a business unit
25 of Assa Abloy, a public company in Sweden. And that is who

1 I'm with currently, HID Global.

2 Q. I'd like to take you backwards with a couple more
3 questions before we turn to your Lumidigm patent.

4 Can you tell us what you were focused on at
5 Sandia Labs when you did the postdoc there?

6 A. At Sandia there were a range of projects. The
7 one -- one of them that wasn't classified and occupied a
8 fair bit of my time was a spectroscopic measurement of
9 semiconductor gases and trying to detect small amounts of
10 water vapor and other impurities in the gas using
11 spectroscopic techniques.

12 Q. How did you decide to join Rio Grande Medical
13 when you completed that postdoc?

14 A. They, Rio Grande, had a very close working
15 relationship with Sandia Laboratories. Some of the
16 technology -- the original technology was shared with Sandia
17 Laboratories, so I became familiar with Rio Grande through
18 their collaboration, and just -- it just seemed like a
19 fabulous opportunity to join them.

20 Q. Can you tell us about a few of the products you
21 worked on when you were at Rio Grande Medical?

22 A. Sure. The primary focus of the company was
23 noninvasive glucose measurement, something that a diabetic
24 could use to measure their blood sugar without drawing
25 blood, without poking themselves. So we designed and built

1 a variety of different spectrometers to do that.

2 Secondarily, we would measure alcohol, which both
3 had a commercial potential, but then had some technical
4 advantages to be able to test equipment, the spectroscopic
5 equipment measuring alcohol.

6 And then a variety of analytes in the system that
7 are medically important, blood gases and a variety of
8 different analytes.

9 Q. Did Rio Grande Medical make any products that
10 measured hemoglobin?

11 A. You know, I don't remember that. I was trying to
12 think about that, but it wasn't primary. As I say, we
13 measured a variety, a wide variety of analytes, but I don't
14 recall exactly.

15 Q. If I can take you back, then, to Lumidigm. How
16 did you -- how did you decide to found Lumidigm?

17 A. Well, technologically, what we found at Rio
18 Grande or InLights Solutions, as it became known, is that
19 the spectroscopic measurements that we were taking on people
20 had a bias. From person to person they would look
21 different, and we would have to correct for each person in
22 order to get the medical measurements out.

23 Those lemons, if you will, became lemonade when
24 we realized that bias from person to person, that difference
25 from person to person, could be made into a biometric, a way

1 to identify a person and distinguish between people. So
2 that was the technology or technological thought behind
3 Lumidigm.

4 Q. And what was your personal role at Lumidigm?

5 A. Well, I was one of the founders of Lumidigm, and
6 I was the Chief Technology Officer.

7 Q. Now your patent that we'll talk about in a moment
8 mentioned something called "liveness detection." Did
9 Lumidigm ultimately incorporate any liveness detection
10 features into its products?

11 A. It was a very important part of what we developed
12 all through the product family and the technology family
13 that we developed. It was critical to be able to
14 distinguish between real living biometric samples, fingers,
15 for example, on humans, and those that were artificial of
16 some kind, or even those that were dead or otherwise not
17 living human fingers.

18 Q. And were Lumidigm's products ultimately
19 successful?

20 A. Yes. Yeah. Yeah.

21 Q. And is Lumidigm still a standalone company?

22 A. No. It was acquired by HID in 2014.

23 Q. And what did you do after HID acquired Lumidigm?

24 A. For a couple of years I continued to be
25 associated and developing and working within HID on the

1 Lumidigm biometrics, making further improvements there with
2 the rest of the team, but then I transitioned into
3 developing other biometrics, such as facial recognition, and
4 most recently transitioned into heading up a team of data
5 scientists working in the area of artificial intelligence,
6 broadly, across a variety of different application spaces.

7 Q. I'd like to pull up now your '212 patent, RX-411.
8 Can you describe -- we'll pull it on the screen and it
9 should also be in your notebook.

10 Can you describe the work that you were doing at
11 Lumidigm that led to the ideas described in the '212 patent?

12 A. Yeah. So the electro-optic sensors that we were
13 designing and building for doing biometric measurements,
14 doing spectroscopic determinations of identity and also
15 liveness, we felt could be used for other purposes. So the
16 '212 patent as well as other patents pertain to the extended
17 functionality of these electro-optic sensors.

18 Q. And I see you at the very end of a very long list
19 of inventors. What was your role in the work described in
20 the patent?

21 A. Throughout the course of Lumidigm, including in
22 developing this patent, I was really the key inventor, the
23 person responsible for coming up with ideas and maturing
24 those ideas so they could be patented.

25 In this particular case many of the concepts came

1 out of a brainstorming session that involved all the
2 different coinventors listed on this patent, but I was -- I
3 was the primary inventor.

4 Q. And how did you end up at the end of the list?

5 A. Yeah. Rather than the tricky process of trying
6 to distinguish just how much each of these people
7 contributed and ordering it according to the value of their
8 contribution, my patent lawyers and I decided let's just
9 alphabetize by last name.

10 Q. I'd like to ask you about some of the functions
11 you describe in your patent, starting with column 19, lines
12 16 to 28, which we'll put on the screen.

13 A. Okay.

14 Q. You describe here functionality that you call a
15 hemoglobin monitor and say that it can detect spectroscopic
16 changes that are correlated with oxygenation and hemoglobin
17 levels in the blood.

18 How would your sensor accomplish that function?

19 A. So in the spectral range that we use, the visible
20 and the very near infrared, hemoglobin has a very, very
21 strong spectral signature, and we would see that spectral
22 signature in our data.

23 Furthermore, hemoglobin has -- has two different
24 aspects, an oxygenated hemoglobin and deoxygenated
25 hemoglobin, both of which are strong and both of which are

1 spectrally distinct from each other.

2 So seeing the hemoglobin in the spectral data and
3 seeing the two different forms of the hemoglobin was
4 something that our sense was very sensitive to.

5 Q. I'd like to put up on the screen some of the
6 figures in your patent showing your potential sensor
7 designs, Figs. 3 through 7D. We're going to put them all up
8 on the screen at the same time.

9 What were you illustrating in these figures?

10 A. So this is a range of embodiments of the
11 inventions disclosed where we are showing in these figures
12 multiple LEDs. They can be of the same wavelength. They
13 can be of different wavelengths.

14 And we're also showing a detector or multiple
15 detectors that can be single element. They can be
16 multi-element. They can be one-dimensional arrays. They
17 can be two-dimensional arrays. And then all of the
18 different arrangement or some example arrangements of how
19 those components can be assembled.

20 Q. I'd like to ask you just about a few of those
21 figures, starting with we're going to put on the screen
22 Fig. 3 and the accompanying text at 833 to 37.

23 What does your patent say about the example in
24 Fig. 3?

25 MS. SWAROOP: Your Honor, I'd like to make an

1 objection with regard to Order No. 42.

2 Masimo filed a motion in limine with regard to
3 Dr. Rowe's testimony, and Your Honor ruled that any
4 questions regarding the disclosure of the Lumidigm reference
5 must be limited to Dr. Rowe's personal and factual knowledge
6 regarding the reference and may not seek opinion testimony
7 regarding how one of ordinary skill in the art would
8 interpret any particular disclosures.

9 So to the extent there's going to be testimony
10 beyond the four corners of this patent, we object as a
11 violation of Order No. 42.

12 MS. VREELAND: Your Honor, if I may respond.
13 I've simply asked him what his patent discloses about
14 Fig. 3. We've put on the screen the relevant disclosure,
15 and I've asked him what the patent says about Fig. 3. I
16 believe that is squarely within what Your Honor said we
17 could do.

18 MS. SWAROOP: Your Honor, if he deviates beyond
19 the text of what his patent says about Fig. 3, that is a
20 violation of Order 42.

21 JUDGE BHATTACHARYYA: Let's continue with the
22 questioning. To the extent you believe there are portions
23 of his testimony that are improper, we'll deal with it when
24 we get to that point.

25 MS. SWAROOP: Thank you, Your Honor.

1 THE WITNESS: Can you repeat your question, then,
2 please?

3 Q. Yes. The question was: What does your patent
4 say about the example in Fig. 3?

5 A. Would you like a verbatim reading or paraphrased?

6 Q. Just a paraphrase for what the patent -- what the
7 patent is showing in Fig. 3.

8 A. Yeah. So Fig. 3 is showing an arrangement of
9 LEDs numbered 34 and a detector 36 which, again, can be a
10 single element, multi-element, 1D array or 2D array, and all
11 of that within a sensor head 32.

12 Q. And --

13 MS. SWAROOP: Object, move to strike everything
14 describing the characters of the detector that's not stated
15 here in this passage that counsel is showing Dr. Rowe.

16 MS. VREELAND: I think the response, Your Honor,
17 would be that the patent in an earlier place says that that
18 single detector can be multiple detectors.

19 MS. SWAROOP: Your Honor, now we have counsel
20 arguing about the disclosure.

21 MS. VREELAND: Well, I think he --

22 MS. SWAROOP: Your Honor, he also used words like
23 "it can be." It does appear that he is now interpreting the
24 disclosure in direct violation of Order No. 42.

25 JUDGE BHATTACHARYYA: Can we take a break for a

1 minute?

2 MS. VREELAND: Absolutely.

3 MS. SWAROOP: Yes, Your Honor. It's page 3 of
4 order 42.

5 (Brief recess.)

6 JUDGE BHATTACHARYYA: We're back on the record.

7 Dr. Rowe can testify regarding his personal
8 knowledge about what the invention is. He can testify
9 regarding his personal knowledge about what he wrote in the
10 patent.

11 To the extent that that's what he is testifying
12 about, it is going to be let in and given the appropriate
13 weight, and counsel can argue about the appropriate weight
14 it should be given in the post-hearing briefs, but he is not
15 limited precisely to reading the patent.

16 MS. SWAROOP: Your Honor, can he be permitted to
17 testify -- he is using words like "can" and "may be able to
18 do this." That seems to be exceeding the disclosure of the
19 patent in violation of Order 42 -- could be, it could be
20 doing this.

21 JUDGE BHATTACHARYYA: I agree. I think he should
22 avoid testimony like that. To the extent there can be some
23 foundation laid for various options that he wrote about in
24 the patent, that's permissible, but general discussion about
25 what could theoretically happen is too much without a

1 foundation.

2 MS. SWAROOP: Thank you, Your Honor.

3 MS. VREELAND: Thank you.

4 Q. Why don't we just speed ahead and look at the
5 embodiment that you illustrate in Fig. 8B and describe in
6 the accompanying text at 1160 to 122.

7 What were you illustrating in Fig. 8B?

8 A. So in 8B we're showing the electro-optic sensor
9 or one example of the electro-optic sensor on the back of a
10 wristwatch.

11 Q. And in the accompanying text you say that any of
12 the sensor geometries previously disclosed can be used for
13 this application.

14 What sensor geometries had you previously
15 disclosed in the patent?

16 A. The figures we were just -- we were just looking
17 at, the Figs. 3 through 7, I believe they were.

18 Q. Okay. So it would have been included the
19 illustrations that we previously discussed in Figs. 3
20 through 7B?

21 A. Mm-hmm, correct.

22 Q. And was there any previously disclosed discussion
23 of the sensor head?

24 A. Yes. Yes, quite a bit, yes.

25 Q. Okay. Great.

1 MS. VREELAND: Well, we'll stop there,
2 Your Honor, since it's past Your Honor's stopping point. No
3 further questions.

4 JUDGE BHATTACHARYYA: All right. Sounds good.
5 There will be further questions tomorrow, I
6 assume, Ms. Vreeland? Will you continue with the witness
7 tomorrow?

8 MS. VREELAND: We'll pass the witness.

9 JUDGE BHATTACHARYYA: All right. So let's break
10 for today.

11 Is there anything that counsel needed to bring up
12 before we adjourn?

13 MS. SWAROOP: Yes, Your Honor.

14 JUDGE BHATTACHARYYA: Dr. Rowe, I'll see you
15 tomorrow for Ms. Swaroop's questioning.

16 THE WITNESS: Okay. May I leave now, Your Honor?

17 JUDGE BHATTACHARYYA: Yes, you may leave. Thank
18 you.

19 THE WITNESS: All right. Thank you.

20 MS. SWAROOP: Your Honor, on the issue of the
21 clock, I did want to address one point.

22 I believe yesterday Mr. Mueller and this morning
23 had indicated to you that Masimo was several hours -- had
24 used several hours more of time than Masimo.

25 Based on our calculations, on the end of today,

1 Apple had, I believe, seven or eight witnesses, they
2 exceeded their time estimates for five of those, and, based
3 on our calculation, Apple is now at a point where they have
4 used more time than Masimo has in terms of hearing time.
5 And we are very concerned that we are not going to have
6 adequate time tomorrow to fully present our rebuttal case.

7 So we believe -- there is a slight dispute in
8 terms of the calculation of time, but we believe that, by
9 our calculation, they have used about 37 more minutes than
10 we have in total. I think, under their calculation, they
11 will think that we have used 15 minutes more than them. So
12 that's the spread we're looking at.

13 We think the dispute is based upon the fact that
14 there were lengthy objections that were argued, including
15 Mr. Scruggs and Mr. Goldberg, that Apple is counting -- is
16 charging us for, and we don't think that's correct. So
17 that's the basis of the difference.

18 But we do think we have -- we're entitled to more
19 than three hours of the hearing day tomorrow in view of
20 where the time -- where we have ended up today after four
21 days of testimony.

22 MR. MUELLER: Your Honor, if I could respond?

23 JUDGE BHATTACHARYYA: Yes.

24 MR. MUELLER: I disagree with the last point. I
25 do think the parties are much closer now than they were at

1 the beginning of the day, that's certainly true.

2 I think at this point, Your Honor, the parties
3 should try to hash out the differences that Ms. Swaroop
4 referred to tonight and we can report back to Your Honor
5 first thing tomorrow morning.

6 It is definitely closer than it was at the
7 beginning of the day. Again, I'm not going to agree with
8 that last estimate, but I think we can -- I hope we can --
9 hash out the remaining agreements tonight and we can report
10 on any outstanding issues to Your Honor first thing tomorrow
11 morning.

12 MS. SWAROOP: Your Honor, we're happy to meet and
13 confer with Mr. Mueller and report to you first thing.
14 Thank you.

15 JUDGE BHATTACHARYYA: One thing that would be
16 helpful, in order to save hearing time tomorrow is, to the
17 extent you come to a position, come to positions tonight, or
18 early tomorrow morning, if you can send me an email
19 previewing any disputes that you're going to want me to
20 resolve, then that will be helpful. We can just summarize
21 what everybody's positions are on the record and I can
22 hopefully rule more quickly with that preview.

23 MR. MUELLER: Thank you, Your Honor. We will do
24 that. I had just one more issue, but I'll wait to see if
25 Ms. Swaroop has any others first.

1 MS. SWAROOP: I'm sure I'll have a response to
2 yours, Mr. Mueller, but please go ahead.

3 MR. MUELLER: Maybe not.

4 Your Honor, for this one, it's actually just a
5 request to Your Honor. Tomorrow morning my daughter is
6 graduating eighth grade, and so, with Your Honor's
7 permission, I would step out for about an hour and a half or
8 so, maybe two hours, to attend the graduation.

9 MS. SWAROOP: We're pleased to have Mr. Mueller
10 attend his daughter's graduation. I'm glad that he is able
11 to fit that in.

12 JUDGE BHATTACHARYYA: I'm happy that you will
13 attend as well. I assume there will be somebody on your
14 team who will be here.

15 MR. MUELLER: Yes, Your Honor, absolutely. Just
16 a preview, I should be here for the beginning of the day, so
17 I should be on camera from a different location at the
18 beginning of the day.

19 Ms. Vreeland will complete the examination of
20 Dr. Rowe, and then Ms. Vreeland will also do the examination
21 of our next witness, Dr. Warren. I will be back before
22 Dr. Warren completes his testimony.

23 JUDGE BHATTACHARYYA: Thank you very much
24 everyone.

25 MR. MUELLER: Thank you, Your Honor.

1 MS. SWAROOP: Thank you. See you tomorrow.

2

3 (Whereupon, at 5:31 p.m., the proceedings
4 adjourned, to reconvene the following day, June 10, 2022, at
5 9:30 a.m.)

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1	C O N T E N T S			
2	INDEX OF WITNESSES			
3				
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5	SAAHIL MEHRA,	876,		
6		876		
7	UEYN BLOCK,	895	903	910 914
8	STEPHEN WAYDO,	918	934	946, 950
9				947
10	BRIAN LAND,	952	973	985
11	PAUL MANNHEIMER,	993	1008	1023 1025
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13				1040
14	MAJID SARRAFZADEH,	1042	1128	
15	ROBERT ROWE,	1141		
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20		899-917	961-969	1065-1087
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22		943-944	998-1005	1114-1134
23				
24				
25				

1 COMPLAINTANTS' CORRECTED TABLE OF ADMITTED
2 EXHIBITS FOR THE EVIDENTIARY HEARING
3 ON JUNE 7, 2022
4 AMMAR AL-ALI
5 CX-0494C
6 CX-1634C
7 CX-1638C
8 JX-009 (CX-0004)
9 CPX-0020C
10 CPX-0020aC
11 BILAL MUHSIN
12 CX-0680C
13 CX-0682C
14 CX-0778C
15 CX-0789C
16 CPX-0019aC
17 CPX-0019C
18 CPX-0146aC
19 CPX-0146C
20 CPX-0155aC
21 CPX-0155C
22 CPX-0156aC
23 CPX-0157aC
24 CPX-0157C
25 STEPHEN SCRUGGS

1	CX-0389C
2	CX-0390C
3	CX-0392C
4	CX-0395C
5	CX-0473C
6	CX-0474C
7	CX-0536C
8	CX-0550C
9	CX-0551C
10	CX-0591C
11	CX-0593C
12	CX-0594C
13	CX-0595C
14	CX-0600C
15	CX-0605C
16	CX-0652C
17	CX-0653C
18	CX-0654C
19	CX-0655C
20	CX-0656C
21	CX-0658C
22	CX-0661C
23	CX-0665C
24	CX-0666C
25	CX-0675C

1	CX-0676C
2	CX-0679
3	CX-0685C
4	CX-0701C
5	CX-0704C
6	CX-0705C
7	CX-0709C
8	CX-0710C
9	CX-0772C
10	CX-0784C
11	CX-0790C
12	CX-0801C
13	CX-0805C
14	CX-0806C
15	CX-0812C
16	CX-0813C
17	CX-0814C
18	CX-0815C
19	CX-0835C
20	CX-0836C
21	CX-1111C
22	CX-1124C
23	CX-1125C
24	CX-1128C
25	CX-1129C

1	CX-1132C
2	CX-1137C
3	CX-1185C
4	CX-1415C
5	RX-0263
6	RX-0264
7	RX-1183C
8	RX-1444
9	CPX-0012C
10	CPX-0012aC
11	CPX-0013C
12	CPX-0013aC
13	CPX-0014
14	CPX-0014a
15	CPX-0021aC
16	CPX-0021C
17	CPX-0029aC
18	CPX-0029C
19	CPX-0058aC
20	CPX-0058C
21	CPX-0065aC
22	CPX-0065C
23	CPX-0141aC
24	CPX-0141C
25	MICAH YOUNG

1	CX-0611C
2	CX-0617C
3	CX-0618C
4	CX-0620C
5	CX-0623C
6	CX-0624C
7	CX-0625C
8	CX-0626C
9	CX-0627C
10	CX-0628C
11	CX-0629C
12	CX-0630C
13	CX-0631C
14	CX-0632C
15	CX-0634C
16	CX-0635C
17	CX-0636C
18	CX-0637C
19	CX-0638C
20	CX-0639C
21	CX-0640C
22	CX-0641C
23	CX-0642C
24	CX-0643C
25	CX-0644C

1	CX-0645C
2	CX-0646C
3	CX-0647C
4	CX-0648C
5	CX-0649C
6	CX-1630
7	CX-1637
8	GERRY HAMMARTH
9	CX-0633C
10	DANIEL McGAVOCK
11	CX-1293
12	CX-1409
13	CX-1616
14	JOSEPH KIANI (JUNE 6, 2022)
15	RX-1186
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17	EVIDENTIARY HEARING ON JUNE 8, 2022
18	JACK GOLDBERG
19	CX-0330
20	CX-0419C
21	CX-0597C
22	CX-0839C
23	CX-0840C
24	CX-0845
25	CX-0846

1	CX-0847
2	CX-0849
3	CX-0850
4	CX-0853
5	CX-1724
6	CPX-0154C
7	VIJAY MADISETTI
8	CX-0307iC
9	CX-0329
10	CX-1038C
11	CX-1058C
12	CX-1062C
13	CX-1068C
14	CX-1069C
15	CX-1072C
16	CX-1074C
17	CX-1251C
18	CX-1406
19	CX-1407
20	CX-1447
21	CX-1449
22	CX-1451
23	CX-1492
24	CX-1532
25	CX-1546C

1	CX-1548C
2	CX-1646C
3	CX-1647C
4	CX-1705
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6	CX-1727
7	CPX-0159
8	CPX-0159a
9	VIVEK VENUGOPAL
10	RDX-4
11	RPX-0040C
12	RPX-0041C
13	RX-0392C
14	RX-0895C
15	CX-1683
16	SAAHIL MEHRA
17	RX-0677C
18	COMPLAINANT'S TABLE OF DEMONSTRATIVES FOR
19	EVIDENTIARY HEARING ON JUNE 6 and 7, 2022
20	CDX-0001C
21	CDX-0005C
22	CDX-0006C
23	CDX-0008C
24	CDX-0016C
25	

1 C E R T I F I C A T E

2 TITLE: CERTAIN LIGHT-BASED PHYSIOLOGICAL MEASUREMENT DEVICES
3 AND COMPONENTS THEREOF

4 INVESTIGATION NO.: 337-TA-1276

5 HEARING DATE: June 9, 2022

6 LOCATION: Washington, D.C. - Remote

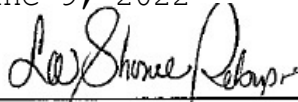
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10 Date: June 9, 2022

11 Signed:

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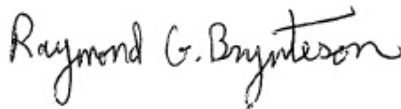


12 Signature of the Contractor or the Authorized Contractor's
13 Representative

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15 the proceedings of the U.S. International Trade Commission
against the aforementioned court reporter's notes and
16 recordings for accuracy in transcription in the spelling,
hyphenation, punctuation and speaker identification and did
17 not make any changes of a substantive nature. The
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18 Signed:

19 ss//



20 I hereby certify that I reported the
21 above-referenced proceedings of the U.S. International Trade
Commission and caused to be prepared from my record media
22 and notes of the proceedings a true, correct and complete
verbatim recording of the proceedings.

23 Signed:

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UNITED STATES INTERNATIONAL TRADE COMMISSION

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In the Matter of

Investigation No.

CERTAIN LIGHT-BASED PHYSIOLOGICAL 337-TA-1276

MEASUREMENT DEVICES AND COMPONENTS

THEREOF

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REVISED AND CORRECTED TRANSCRIPT

OPEN SESSIONS

Pages: 1168 through 1459

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1 UNITED STATES INTERNATIONAL TRADE COMMISSION

2 Washington, D.C.

3 Before the Honorable Monica Bhattacharyya

4 Administrative Law Judge

5

6 -----x

7 In the Matter of Investigation No.

8

9 CERTAIN LIGHT-BASED PHYSIOLOGICAL 337-TA-1276

10 MEASUREMENT DEVICES AND COMPONENTS

11 THEREOF

12 -----x

13

14

15 EVIDENTIARY HEARING

16 Friday, June 10, 2022

17 Volume V

18

19

20 The parties met via remote videoconferencing
21 pursuant to notice of the Administrative Law Judge at 9:30
22 a.m. Eastern.

23

24

25 Reported by: Linda S. Kinkade RDR CRR RMR RPR CSR

1 A P P E A R A N C E S:

2 [All parties appeared via remote videoconferencing and/or
3 telephonically.]

4

5 Counsel for Complainants Masimo Corporation and Cercacor
6 Laboratories, Inc.:

7 KNOBBE, MARTENS, OLSON & BEAR, LLP

8 2040 Main Street, Fourteenth Floor

9 Irvine, California 92614

10 (949) 760-0404

11 Stephen C. Jensen, Esq.

12 Joseph R. Re, Esq.

13 Sheila N. Swaroop, Esq.

14 Ted M. Cannon, Esq.

15 Kendall M. Loebbaka, Esq.

16 Douglas B. Wentzel, Esq.

17 Irfan A. Lateef, Esq.

18 Brian C. Claassen, Esq.

19 Daniel C. Kiang, Esq.

20 Douglas B. Wentzel, Esq.

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Complainants Masimo Corporation and Cercacor
4 Laboratories, Inc.:

5 KNOBBE, MARTENS, OLSON & BEAR, LLP
6 1717 Pennsylvania Avenue, NW, Suite 900
7 Washington, DC 20006
8 (202) 640-6400
9 Jonathan E. Bachand, Esq.

10

11 KNOBBE, MARTENS, OLSON & BEAR, LLP
12 925 4th Avenue, Suite 2500
13 Seattle, Washington 98104
14 (206) 405-2000
15 Carol Pitzel Cruz, Esq.

16

17

18

19

20

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 1875 Pennsylvania Avenue, NW

6 Washington, DC 20006

7 (202) 663-6000

8 Michael D. Esch, Esq.

9 David L. Cavanaugh, Esq.

10

11 WILMER CUTLER PICKERING HALE AND DORR LLP

12 2600 El Camino Real, Suite 400

13 Palo Alto, California 94306

14 (650) 858-6000

15 Mark D. Selwyn, Esq.

16

17

18

19

20

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 60 State Street

6 Boston, Massachusetts 02109

7 (617) 526-6000

8 Joseph J. Mueller, Esq.

9 Richard Goldenberg, Esq.

10 Sarah R. Frazier, Esq.

11 Jonathan A. Cox, Esq.

12 Nina Garcia, Esq.

13 Cynthia D. Vreeland, Esq.

14

15

16 WILMER CUTLER PICKERING HALE AND DORR LLP

17 1225 17th Street, Suite 2600

18 Denver, Colorado 80202

19 (720) 598-3459

20 Ravi S. Deol, Esq.

21

22

23

24

25 CONTINUED ON FOLLOWING PAGE

1 A P P E A R A N C E S (continued):

2

3 Counsel for Respondent Apple Inc.:

4 WILMER CUTLER PICKERING HALE AND DORR LLP

5 350 South Grand Avenue, Suite 2400

6 Los Angeles, California 90071

7 (213) 443-5300

8 Derek Gosma, Esq.

9

10

11

12

13

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17 *** Index appears at end of transcript ***

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1 P R O C E E D I N G S

2 (In session at 9:30 a.m.)

3 JUDGE BHATTACHARYYA: It looks like there's no
4 cross for Dr. Rowe; is that correct?

5 MS. SWAROOP: That's correct, Your Honor, but
6 there is one issue that has arisen with regard to his
7 deposition designations that we did want to raise with
8 Your Honor this morning.

9 JUDGE BHATTACHARYYA: Okay. Go ahead.

10 MS. SWAROOP: Sure. So we understood from the
11 motion in limine that we filed on Dr. Rowe, Apple made
12 representations that it was not intending to call Dr. Rowe
13 by deposition but rather call him live at the hearing, and
14 that was in their opposition to our motion in limine. And
15 in Order 42 at page 2, Your Honor also reflected that,
16 indicating that Apple was not intending to present him by
17 deposition.

18 After Dr. Rowe completed his direct examination
19 yesterday, Apple asked us to withdraw our cross-examination
20 of Dr. Rowe, but at the same time we received a set of
21 designations from Apple for Dr. Rowe.

22 And so we understood that Apple would not be
23 presenting any designations from Dr. Rowe based upon the
24 representations that they made in opposing our motion in
25 limine and that Your Honor relied on in Order No. 42. We

1 would like to object to that, Your Honor.

2 MS. VREELAND: Just to be clear, we do not ask
3 that any designations be entered. The trial testimony is
4 what we'll rely on. So I don't think there's a dispute
5 here.

6 MS. SWAROOP: Thank you. I appreciate that
7 clarification.

8 So the chart that we got of the designations,
9 you'll be taking Dr. Rowe's designations off of that; is
10 that correct?

11 MS. VREELAND: I think they've already been taken
12 off, yeah.

13 MS. SWAROOP: Thank you.

14 We also have a couple of issues with regards to
15 exhibits for today. So there is two specific I wanted to
16 raise. One was an exhibit that came up in -- was referenced
17 in the presentation of Dr. Sarrafzadeh yesterday, and that
18 was CX-322bC, lower case b capital C, and the issue there is
19 that Apple had presented a version of that exhibit, and it's
20 an excerpt from Dr. Sarrafzadeh's report relating to some
21 testing.

22 And we are in agreement that certain images and
23 factual information relating to the tests can come in, but
24 we felt that the excerpt presented also included opinions
25 that we didn't think were appropriate, so we presented an

1 alternative version.

2 I think the parties would suggest that we submit
3 both exhibits to Your Honor, both parties' versions of that
4 exhibit, and Your Honor can make a decision as to which one
5 should be admitted. So that, I think, is reflected on the
6 table of exhibits for yesterday.

7 MR. SELWYN: Your Honor, we don't want to spend
8 time debating this. We want to get moving this morning. We
9 agree. We'll submit both of them. Your Honor will have
10 emails from the parties summarizing their arguments and
11 Your Honor can rule.

12 JUDGE BHATTACHARYYA: All right. If everyone
13 agrees on that procedure, we'll move in that fashion.

14 MS. SWAROOP: Thank you, Your Honor. And then
15 the last issue I wanted to raise is with an anticipated
16 exhibit coming up in the examination of Apple's expert,
17 Dr. Warren, and that is RX-1470C.

18 So what this exhibit appears to be is an excerpt
19 from a report that Dr. Warren submitted in this
20 investigation on the issue of domestic industry technical
21 prong. And, again, this appears to be not simply test
22 results, but it's his -- things that he observed with regard
23 to the DI products. It's not actually a test setup at all.

24 And so Dr. Sarrafzadeh testified about this in
25 his direct, and we think, if Apple would like to rely on

1 Dr. Warren's objections or whatever it is, they should do
2 that through his direct testimony rather than excerpting
3 portions of his report and submitting that as part of the
4 record. So we do object to that as well.

5 JUDGE BHATTACHARYYA: Ms. Swaroop, this is a
6 portion of Dr. Warren's report that you're concerned about?

7 MS. SWAROOP: Yes. Dr. Warren is attempting to
8 introduce portions of Dr. Warren's own report in his direct.

9 JUDGE BHATTACHARYYA: And you also mentioned
10 Dr. Sarrafzadeh.

11 MS. SWAROOP: Yes, Your Honor. They submitted a
12 joint report that they both signed on the issue of technical
13 prong domestic industry. So the official title of it is a
14 rebuttal expert report from both of them. So that's what
15 they're now seeking to introduce through Dr. Warren,
16 excerpts from his -- of his opinions.

17 JUDGE BHATTACHARYYA: Thank you.

18 MS. VREELAND: Your Honor, two responses. First,
19 just a clarification on what it is. It is a short excerpt
20 from Dr. Warren's report with the measurements he recorded
21 during the demonstration of the Masimo devices and also his
22 own work with them.

23 We think it is admissible for two reasons.
24 First, it is a summary of his work under Rule 106. And,
25 secondly, and uniquely important, we have agreed twice

1 during this trial to Masimo introducing similar summaries of
2 their experts' work. And I would point Your Honor
3 specifically to CX-307IC, and we can put it on the screen if
4 it would help Your Honor. This is a 32-page excerpt from
5 Dr. Madisetti's report relating to the testing he did. It
6 was not on their exhibit list. They provided it as a new
7 exhibit during the trial, and we agreed to its admission.

8 Dr. Warren's Exhibit 1470C is much shorter. It's
9 only nine pages. It's a very short excerpt from his expert
10 report with the testing data. So we think it's admissible
11 for two reasons.

12 First, under Rule 106, and, secondly, we agreed
13 to allow Masimo to provide exactly the same type of excerpt
14 from Dr. Madisetti's report.

15 MS. SWAROOP: Your Honor, if I could be heard.
16 Length has nothing to do with admissibility here. The
17 Appendix I that counsel showed on the screen was an appendix
18 that was describing a test setup.

19 What we have here in RX-1470C is Dr. Warren's
20 observations about what he saw. We did agree to the excerpt
21 from Dr. Sarrafzadeh because that was a test setup and we do
22 have a dispute over which version. But really the issue is
23 over the content here, they're excerpting portions of his
24 opinions, and seeking to admit that into evidence.

25 If they want to submit his observations into

1 evidence, he should provide testimony about that.

2 MS. VREELAND: Your Honor, if I may just respond.
3 He will proceed the testimony. The specific thing we're
4 interested in are those measurement tables that
5 Dr. Sarrafzadeh testified about and that Dr. Warren will as
6 well, and we offered to redact anything else they wanted us
7 to redact from the exhibit. They made no suggestions.

8 We're certainly happy to do further redactions.
9 We offered to do further redactions. What we're really
10 interested in having in evidence are his tables of the
11 measurements he recorded during his work with the W1 and
12 during the demonstration. Again, it's a much smaller thing
13 to add than what we agreed to add for Dr. Madisetti.

14 JUDGE BHATTACHARYYA: It sounds like the
15 measurements themselves fall into this general category of
16 test data and test protocols that you believe are
17 admissible.

18 MS. SWAROOP: That's correct, Your Honor. The
19 measurement table itself would be fine with us. I think the
20 issue is the text and the explanations there.

21 MS. VREELAND: Your Honor, we offered to make
22 further redactions. So I think this is something that the
23 parties can work through following this conversation as
24 we've offered to do from the start.

25 MS. SWAROOP: I'm sure we can work that out,

1 Your Honor.

2 JUDGE BHATTACHARYYA: All right. Sounds good.

3 Can we go ahead with the witness or do we need to
4 take a break to --

5 MR. MUELLER: Yes, Your Honor. Our next witness
6 is Dr. Warren. Ms. Vreeland will do the examination. As I
7 said yesterday, I'm going to step out for a bit, but I will
8 be back.

9 JUDGE BHATTACHARYYA: All right. Thank you.

10 MR. MUELLER: Thanks very much.

11 MS. SWAROOP: Your Honor, I don't know if we need
12 to put it formally on the record, but we are not calling
13 Dr. Rowe for cross-examination. We did inform Apple of that
14 yesterday, but I wanted to make that clear on the record as
15 well. Dr. Rowe, not Dr. Warren.

16 JUDGE BHATTACHARYYA: You're calling Dr. Rowe for
17 cross-examination?

18 MS. SWAROOP: No, no. I just wanted to make
19 clear that we are not seeking cross-examination of Dr. Rowe.
20 We're completed with that witness and we can begin with
21 Dr. Warren.

22 JUDGE BHATTACHARYYA: Understood. Thank you very
23 much.

24 Good morning, Dr. Warren. I think you're on mute
25 still.

1 THE WITNESS: Good morning, Your Honor. Good
2 morning everyone.

3 JUDGE BHATTACHARYYA: Do you understand that
4 you're under an obligation to tell the truth in your
5 testimony today?

6 THE WITNESS: Yes.

7 STEVE WARREN,
8 having been first duly sworn and/or affirmed
9 on his oath, was thereafter examined and testified as
10 follows:

11 JUDGE BHATTACHARYYA: Thank you. You may proceed
12 counsel.

13 DIRECT EXAMINATION

14 BY MS. VREELAND:

15 Q. Dr. Warren, could you begin by introducing
16 yourself to Her Honor?

17 A. Yes. My name is Steve Warren. I'm a professor
18 at Kansas State University.

19 Q. You got your K-State purple on today?

20 A. I do, yes, I have to represent.

21 Q. How long have you been a professor at K-State?

22 A. I started in '99, so about 23 years.

23 Q. And can you briefly describe your educational
24 background?

25 A. Yes. I have three degrees in electrical

1 engineering: a Bachelor's and a Master's degree from Kansas
2 State, and then a doctorate from the University of Texas at
3 Austin, and then I've also done a postdoctoral appointment
4 at Sandia National Labs.

5 Q. What was the focus of your research, your Ph.D.
6 research, at the University of Texas?

7 A. That research was biomedical research. It was
8 light tissue interaction or laser tissue interaction, where
9 we were using argon ion laser light to diagnose coronary
10 artery and aorta disease progression.

11 Q. And what did you do after receiving your Ph.D.?

12 A. I finished my doctorate, and then I went to
13 Sandia National Labs as a postdoctoral appointment, and I
14 worked for a group there that was working on a personal
15 status monitor project.

16 Q. Was that a light-based sensor?

17 A. It incorporated a light-based sensor, among other
18 things, yes.

19 Q. What did you do after completing your work at
20 Sandia?

21 A. After I finished at Sandia, I went to Kansas
22 State University to begin a professor appointment and I've
23 been there since.

24 Q. How did you choose to go back to K-State?

25 A. Well, I'm from Kansas originally, so it was nice

1 to bring kids back to grandparents.

2 Q. What are your current responsibilities at Kansas
3 State?

4 A. It is a three-prong appointment. It's a
5 research, teaching, and service appointment.

6 Q. Okay. What technologies have you focused on at
7 Kansas State?

8 A. We've worked on a lot of things, but for research
9 it's been primarily physiological monitoring tools, wearable
10 sensors, pulse oximeters specifically, signal analysis, and
11 engineering education, to name a few.

12 Q. Can you provide some -- have you built or
13 developed any physiological sensors over the time that
14 you've worked at K-State?

15 A. We've built dozens of different varieties of
16 sensors, accelerometers, pulse oximeters, motion units,
17 conductive plethysmographs, all kinds of different things.

18 Q. Can you provide a few examples?

19 A. Yeah. A lot of our work deals with what I would
20 call vulnerable populations. So the elderly, for example,
21 we've looked at various portable or ambulatory monitors for
22 use with aging.

23 Some of those units, if you turn them a quarter
24 turn, you get a different sensor every time you turn it a
25 quarter turn. We've looked at portable pulse oximeters in

1 that environment, both wired and wireless.

2 And we've spent a fair amount of time doing
3 designs for kids with disabilities, specifically recently a
4 bed that monitors the child's heart rate and breathing rate
5 in-and-out bed activity and movement all night while they
6 sleep.

7 Q. Have you published any papers in the field?

8 A. We've published quite a lot. It's about 175
9 papers total that are peer-reviewed. I think about 80 or 85
10 percent of those are physiologic monitoring related.

11 Q. How many of those would relate to pulse oximetry
12 then?

13 A. I would bet more than half of the physiologic
14 ones.

15 Q. And have you received any grants or funding for
16 your research?

17 A. Yeah. Last count we were at 62 funded grants
18 since I started at Kansas State for about \$14 million total.
19 Most of that was --

20 Q. Go ahead.

21 A. Most of that was through the National Science
22 Foundation, and we had a fair amount of funding through NASA
23 to look at wearable sensors.

24 Q. Have you taught any classes?

25 A. I teach every semester, usually two classes a

1 semester. This was my 33rd time on linear systems last
2 semester.

3 Q. Have you included in those classes any teachings
4 on pulse oximetry?

5 A. We address pulse oximetry directly in my
6 introduction to biomedical engineering class and in my
7 biomedical instrumentation course, but we also use those
8 signals in -- there's a graduate scientific computing class
9 that I've taught and that class I just mentioned, I use
10 those signals as test cases for the students.

11 Q. What about laboratories, have you -- do you have
12 any laboratories that involve pulse oximetry?

13 A. We've had a number of them, usually as part of
14 the biomedical instrumentation sequence. It's a lecture lab
15 pair.

16 Q. And when did you begin building pulse oximeters
17 with your students?

18 A. Well, I started myself in the mid-'90s, but with
19 my students I started in about spring 2000 was when we had
20 our first units.

21 Q. So that would have been about eight years before
22 the Poeze patents were filed?

23 A. That's correct.

24 Q. We're going to put on the screen RX-632.

25 Do you recognize RX-632?

1 A. Yeah, these are some of my favorite students from
2 a fall 2002 biomedical instrumentation course.

3 Q. Who are we seeing?

4 A. Ryan Schmitz in the front currently works for
5 Garmin; Zanatil Furtis is behind him; and then behind her is
6 Jianchu Yao, who is an associate dean at East Carolina at
7 the moment.

8 Q. For Mr. Schmitz, where is the sensor in the
9 photo?

10 A. Ryan is acquiring a measurement from his wrist in
11 this photo.

12 Q. Okay. So were your students able to use these
13 pulse oximeters, then to, make measurements on their wrists?

14 A. Yeah. That was part of the fun part was having
15 them make measurements all over their bodies, in fact, with
16 these sensors.

17 Q. Have you personally received any awards or
18 recognitions for your work at K-State?

19 A. Well, I have, I mean, a number of them. The one
20 that's my favorite, honestly, is an award I received about
21 two years ago. It's a public service award that I received
22 from the college, and that was for our work, not only with a
23 disaster response team for tornado cleanup that I manage,
24 but also some work that we did for 15 years with Heartspring
25 to build tools with kids for special needs.

1 Q. And would those, when you say "tools for kids
2 with special needs," what kinds of tools would those be?

3 We can take the photograph down.

4 A. Yeah, these would be the beds that I mentioned or
5 wearable senses. We worked on toothbrush design to track
6 how they brush their teeth as a training exercise. Just a
7 variety of things that you might not imagine unless you
8 spend time with these children.

9 Q. We're going to put on the screen CX-335.
10 Do you recognize this?

11 A. I do.

12 Q. What are we seeing?

13 A. This is the front page from my academic CV.

14 Q. And does CX-335 accurately summarize your work in
15 the field of light-based sensors and pulse oximetry?

16 A. It does, yes.

17 Q. Dr. Warren, have you ever testified at trial
18 before?

19 A. No, this is the first time.

20 Q. Well, I'll be the first, then, to move to admit
21 you as an expert witness.

22 Your Honor, we would move to admit Professor
23 Warren as an expert in biomedical engineering, medical
24 monitoring systems, biomedical instrumentation, biomedical
25 optics, light issue interaction, diagnostic systems,

1 wearable sensors, and biomedical signal processing.

2 JUDGE BHATTACHARYYA: Any objection?

3 MR. CLAASSEN: Just making sure I can read the
4 transcript of that impressive list.

5 No objection.

6 JUDGE BHATTACHARYYA: Let me formally admit him.

7 Dr. Warren is hereby admitted as an expert in
8 biomedical engineering, medical monitoring systems,
9 biomedical instrumentation, biomedical optics, light issue
10 interaction, diagnostic systems, wearable sensors, and
11 biomedical signal processing.

12 MS. VREELAND: Thank you, Your Honor.

13 Q. Professor Warren, at a high level, what issues
14 have you been asked to consider in this case?

15 A. I've been asked to look specifically at whether
16 the Apple products infringe a set of three patents we call
17 them the Poeze patents.

18 Q. Any other issues?

19 A. Yeah. I've also been asked to address the
20 validity of the claim limitations that are specified in
21 those asserted patents.

22 Q. And at a high level, have you reached any
23 opinions?

24 A. Yeah, at a high level, I guess my opinions are
25 twofold. The first is that the Apple Watch Series 6 and 7

1 do not infringe these patents, and my other opinion, at a
2 high level, is that these patents in terms of their claim
3 limitations are invalid based on prior art.

4 Q. And have you put together -- have you helped put
5 together some demonstrative exhibits to explain the basis
6 for your opinion?

7 A. Yes.

8 Q. We're going to put on the -- and do you recognize
9 what we have on the screen, RDX-8.1?

10 A. I do. Yes, I do. Thank you.

11 Q. If we could turn to the next slide.

12 Professor Warren, how long have researchers been
13 using light-based sensors to take physiological
14 measurements?

15 A. We have well-documented evidence that goes back
16 at least eighty years, although there's some work in the
17 late 1800's that applies as well.

18 Q. When was RX-654, the Mathis article, published?

19 A. This is a 1938 article that looked at light-based
20 transmission through the finger and the toe in a subject.

21 Q. I'd like to ask you some questions about the
22 state of the art in July 2008, the priority date for the
23 Poeze patents. Do you have that date in mind?

24 A. I do.

25 Q. If we could turn to the next slide.

1 In July 2008 what was known about the number of
2 LEDs that could be included in an optical sensor?

3 I'm sorry. I'm going to skip that one and go one
4 more to RDX-8.5.

5 In July of 2008, what was known about the number
6 of LEDs that could be included in a light-based sensor?

7 A. Well, I could say generally that the answer would
8 be a plurality and a plurality in sets. I noted some
9 examples on this slide or this viewgraph.

10 For example, Smart is an interesting one, 1971.
11 It has 13 LEDs and this was 50 years ago.

12 McCarthy in the upper right, 1991, incorporated
13 eight LEDs, each of which could be included in sets or
14 co-located we would say.

15 If you look in the lower left, there's Haar --
16 oh, by the way, Smart, RX-473 is its number. McCarthy
17 RX-489.

18 Haar in the lower left, RX-667, is an example of
19 a plurality of LEDs, which are also in sets; Scharf 137,
20 RX-335, is a good example of a pulse oximeter that uses
21 green light.

22 And then Lumidigm in the lower right, RX-411, is
23 a little more recent, but it has all kinds of
24 configurations.

25 Q. On the next slide, what is a set of LEDs?

1 A. A set of LEDs would be a grouping, and they could
2 be either in different locations but assigned to one another
3 as a group, or it could be what we would call a co-located
4 set, which might be, for example, three LED dies about the
5 size of a pepper speck, as we saw the other day in the same
6 physical package.

7 Q. And in July of 2008, what was known about the
8 number of sets of LEDs that could be included in an optical
9 sensor?

10 A. Well, as of that time it had already been known
11 for quite some time that you could work with LEDs in sets.
12 I included some examples here on the slide.

13 For example, McCarthy in the upper middle,
14 RX-489, in 1991 demonstrated this principle; Haar, which
15 I've already mentioned in the upper right, RX-667, did the
16 same.

17 There's a really an interesting, in the lower
18 left, an application from Walowit, RX-502, that used various
19 sets of sets of LEDs.

20 And then we have an additional set of examples,
21 I'll pull out Gratton, for example, on the lower right,
22 RX-456, that did LEDs in sets at different distances.

23 Q. If we could turn to the next slide.

24 In July of 2008, what was known about the number
25 of photodiodes that could be included in an optical sensor?

1 A. Yeah. A person of ordinary skill would have
2 known at that time that you could include a plurality of
3 photodiodes. I have examples here that note four or more
4 where they could be arranged radially, meaning in a circular
5 arrangement, or in what we would say is a rectilinear grid
6 or a Cartesian coordinate system.

7 So some of the examples of note here are from
8 1978. I've noted two. There's Orr, RX-495, and Cramer,
9 RX-670, and then, again, we see McCarthy on the upper row,
10 RX-489. Mendelson in the top is really popular, RX-458.
11 And then if you look at the bottom, the Konig reference,
12 RX-487, has made an impact in this arena.

13 Q. If we were to turn to the next slide, would you
14 be able to name even more? And I won't stop you.

15 A. This slide has some really good ones. A good
16 example, I include, Lumidigm RX-411, in the upper left,
17 which we'll talk about much more later.

18 The Avni article in the upper right, second from
19 the right, is an interesting one, because that's a
20 swallowable GI pill that uses light as a sensing mechanism.
21 I listed our own sensor in the upper right, K-State 6D,
22 RPX-6.

23 Q. I'm going to stop you there. I think we got a
24 full list.

25 I'm going to ask you on the next slide, in July

1 of 2008, what was known about the use of openings with
2 opaque surfaces over photodiodes?

3 A. Well, I would say in 2008 and many decades prior,
4 openings are a way for light or to allow light to get to a
5 detector. A detector can't detect light without some sort
6 of opening above it.

7 Q. And if we were to turn to the next slide, can you
8 provide some examples before 2008 -- July of 2008 -- of
9 devices that combine these concepts that you've been talking
10 about -- multiple LEDs, four or more photodiodes, and
11 openings over those photodiodes?

12 A. Yes. None of these tools existed in isolation.
13 A designer would have used a collection of a grouping or
14 permutation of many of them in their work.

15 One I really like a lot is Smart, RX-473, because
16 it incorporates the LEDs, the photodiodes, the opaque
17 material, the interior surfaces, the opaque surfaces, and
18 the openings all in one bundle, 50 years ago.

19 Q. What are the others that you've identified on
20 this slide? And just by name and exhibit number.

21 A. Okay. Haar, RX-667, and then McCarthy, RX-489,
22 Lumidigm, RX-411, and then finally Imai, RX-1220.

23 Q. If we can turn to the next slide.

24 In July of 2008, what was known about the use of
25 transmissive coverings or windows over photodiodes?

1 A. I noted earlier that you need an opening to allow
2 light to reach a detector. A window is another way to allow
3 that to happen where a window is a physical piece of
4 material, or we call it a transmissive covering, where the
5 covering would allow light through, but it would also
6 physically protect the detector from dust and debris and
7 dirt, liquid, things of that nature.

8 Q. What are your favorite examples here?

9 A. I'll pick a few. I really like Cramer RX-670 in
10 the upper left, because it's more than 40 years old.
11 Nippon, or what I call Jaib, RX-665, next to it. Seiko,
12 we'll hear about in a moment, RX-666, and then also Haar,
13 RX-667. And I might point out we also did this with Kansas
14 State, RX-648.

15 Q. If we could turn to the last slide in this
16 series.

17 In July of 2008, what was known about the use of
18 structures protruding into the tissue in optical sensors?

19 A. So a person of ordinary skill would have already
20 known that you could take a structure, we'll call it a
21 protrusion or a sensor head, and push that into tissue, and
22 what that would enable is that would push residual blood out
23 of the way and increase your AC-to-DC signal ratio, meaning
24 that you would see the tissue perfusion in a better way.

25 And there were a number of designs that did this.

1 Again, I like Smart, because it's so old, RX-473, but
2 Cramer, next to it, RX-670, also implemented this mechanism.

3 And Seiko in the bottom left, Seiko 131, which is
4 RX-666, not only implemented it, but explained well why the
5 technique was important and why it worked.

6 Q. If we could go to the next slide.

7 Professor Warren, we're going to come back to the
8 Apple Watch later, but until then just a few preliminary
9 questions.

10 How long have optical sensors included four or
11 more sets of LEDs?

12 A. At least since 1990, so 30 years.

13 Q. How long have optical sensors included four or
14 more photodiodes arranged in quadrants?

15 A. Cramer 1978 would be a good example, so 40 years.

16 Q. How long have optical sensors included openings
17 with opaque surfaces over photodiodes?

18 A. That goes all the way back to Herczfeld and Smart
19 in the late '60s.

20 Q. And how long have optical sensors included convex
21 protrusions to conform to a measurement site?

22 A. I would offer Smart for that one, early '70s.

23 Q. We're going to turn now to RDX-8.88.

24 You mentioned earlier that you have built pulse
25 oximeters with your students in laboratory classes. Do you

1 recognize -- let me just ask you to remind us the timing of
2 these laboratory courses.

3 A. I took these pictures in fall 2002.

4 Q. Okay. What are we seeing on the top row?

5 A. So the top row is just some example pictures from
6 a Tuesday evening session that we managed with the students
7 where I attempted to archive the pulse oximetry procedure.

8 Q. Is that Mr. Schmitz again on the left taking a
9 measurement on his wrist?

10 A. It is, yes.

11 Q. And what are we seeing in the bottom row?

12 A. So the bottom row is a collection of sensors that
13 were built by students. On the left row we have some built
14 by Ryan, excuse me, by Austin Wareing. And in the center
15 there were some other built by students as well as the
16 right.

17 Q. I'd like to ask you about one in particular.
18 We're going to turn to RDX-889.

19 Do you recognize the student-made sensor in the
20 photo on the left here, RX-515?

21 A. Yes. This is a sensor that Austin Wareing built.

22 Q. Okay. And who was Austin Wareing?

23 A. Oh, yes, Austin Wareing was an undergraduate
24 student in my laboratory working on an Honors Research
25 project.

1 Q. Okay. And at the time he created this sensor,
2 would he have met the agreed definition of a person of
3 ordinary skill in the art?

4 A. No, he did not yet have his undergraduate degree.

5 Q. When did he create this sensor?

6 A. This was a summer 2004 project.

7 Q. Can you describe at a high level the primary
8 components he included in his sensor?

9 A. Yeah. The sensor incorporated six photodiode
10 detectors. These are large area detectors. And they were
11 embedded on an interior foam surface, and that was
12 sandwiched then with another piece of foam on top.

13 And to provide openings, Austin cut holes in the
14 foam with an X-Acto knife, and then he cut the border around
15 the entire unit with a pair of scissors.

16 Q. Do you recognize the photo on the top left,
17 RX-517?

18 A. Yes. On the top right, it's Austin's sensor
19 along with a data acquisition board to which it interfaced.

20 Q. What components would that data acquisition board
21 have had?

22 A. That was a board driven by a PIC microcontroller,
23 and it also had the sample on hold circuitry and some other
24 circuitry on it.

25 Q. Including processors?

1 A. Yes, the PIC microcontroller was a processor with
2 memory.

3 Q. What are we seeing in the bottom right, RX-652?

4 A. The image in the bottom right is a depiction of
5 one of the Bluetooth boards that we used with RX-0517. This
6 was a Bluetooth board that we had just a small number of.

7 Q. And we're going to quickly put on the ELMO three
8 physical exhibits, RPX-6, RPX-7, and RPX-33.

9 Do you recognize these?

10 A. Yes, I do.

11 Q. And how would you compare these to what we just
12 saw in the photos?

13 A. They're the same units that were in the photos,
14 although I believe the one on the right is upside down.

15 Q. Sorry about that.

16 We're going to turn, then, to RDX-890.

17 Did any of your students ever use more than two
18 LEDs in RDX-890?

19 A. Yeah. We looked at a previous viewgraph with
20 some students' sensors in it, and it incorporated four sets
21 of two LEDs around a central photodiode detector. And there
22 is an image on the screen at the moment that depicts another
23 student's work that incorporates three LEDs.

24 Q. Did any of your students ever include windows
25 over the photodiodes in their sensors?

1 A. Yeah. One of the nice products available at the
2 time is what we would call a can photodiode, which means a
3 photodiode in a can with a window over the top to provide a
4 lens and a protective function.

5 Q. And are we looking at RX-510 and RX-648?

6 A. Yes.

7 Q. If we could turn to the next slide.

8 MR. CLAUSSEN: Your Honor, I'd like to raise an
9 objection before we move on. My objection is that RPX --
10 want to make clear for the record that RPX-18 is not part of
11 the grounds for this case. And so we object to any
12 implication that RPX-16 and RPX-18 are part of the grounds
13 for this case.

14 MS. VREELAND: Your Honor, we're only introducing
15 the photos so we're not going --

16 MR. CLAASSEN: With that representation, we can
17 move on.

18 Q. If we could turn, then, to the next slide.

19 What is RX-508?

20 A. This is a publication from 2005 that we presented
21 at the American Society for an Engineering Education
22 Conference.

23 Q. And do you recognize the acquisition board and
24 the sensor in the bottom left excerpt from this article?

25 A. Yes. Those are the same two pieces of hardware

1 that we just saw on the ELMO unit.

2 Q. Okay. And if we could turn, then, to the next
3 exhibit.

4 What is RX-504?

5 A. This is a poster that Austin used for a public
6 presentation in our college Honors Colloquium, the atrium
7 exercise, and it speaks to the design of his sensor head in
8 addition to the other hardware and software that was used.

9 Q. And what did he highlight about his design?

10 A. The highlighted element is -- speaks to the foam.
11 So the optical foam that we use or the black foam was
12 intended to be pliable so that the sensor head could conform
13 to tissue. And there was a clear reason for using the foam
14 itself, and that was to essentially block light or prevent
15 light piping via the use of opaque material.

16 Q. Let's turn, then, to the Poeze patents. We're
17 going to go to RDX-814.

18 Do you recognize the three patents on the screen,
19 JX-1, JX-2, and JX-3?

20 A. I do.

21 Q. Can we call these the Poeze patents?

22 A. Yes.

23 Q. What types of pulse oximeters do the Poeze
24 patents show in their figures and embodiments?

25 A. These would address what we would call clothespin

1 style transmissive finger clips.

2 Q. If we could go to the next figure.

3 So in the examples in the Poeze figures, are the
4 LEDs and the photodiodes on the same side of the sensor?

5 A. The LEDs and photodiodes are on different sides
6 of tissue, if that was the question you intended.

7 Q. And do the Poeze patents say anything about
8 reflective pulse oximeters?

9 A. That mode is mentioned briefly in the spec but
10 not in the pictures themselves.

11 Q. And in the examples in the Poeze figures, what
12 part of the body is being used as the measurement site?

13 A. These are all fingertip sensors.

14 Q. Okay. Have you read each of the -- the patent
15 specifications from front to back?

16 A. I've read them front to back twice, but I've
17 studied a number of the other areas, many hours, countless
18 hours it seems at this point.

19 Q. And have you seen anything anywhere in those
20 Poeze specifications about taking a measurement on a wrist?

21 A. No.

22 Q. Nothing?

23 A. No. There is only a mention to finger, toe,
24 hand, foot, ear, and forehead, as I recall, no wrist.

25 Q. If we could turn to the next slide, RDX-816.

1 Masimo has focused in particular on the fact that
2 the Poeze patents disclose pulse oximeters with a
3 protrusion.

4 What do the patents say about the shape of the
5 protrusion that you can use with the -- in the purported
6 invention?

7 A. The specification states that it can be convex,
8 but then it also says it can be sized and shaped to conform
9 the tissue to a flat or relatively flat surface. It also
10 states that it can be cylindrical or partially cylindrical.

11 And then it says here at the bottom of the
12 highlighted portion it could be sized and shaped differently
13 for different measurement sites. So a variety of
14 descriptions of shapes and sizes.

15 Q. Do the patents ever at any point suggest using a
16 convex protrusion for taking a measurement at a wrist?

17 A. No.

18 Q. We're going to turn to the next slide.

19 Masimo has focused in its testimony on the
20 reduction of light piping. What do the Poeze patents say
21 about how to reduce light piping, if at all?

22 A. The only thing the spec says about reducing light
23 piping, at least with regard to opaque material, is with
24 regard to the protrusion in the upper example, black or
25 other colored plastic. And then with regard to the noise

1 shield in the bottom exhibit, opaque color such as black or
2 dark blue.

3 Q. So are there any teachings in these
4 specifications, then, beyond using opaque materials?

5 A. Not for light piping.

6 Q. And how long have people in the industry been
7 using openings with opaque materials to reduce light piping?

8 A. The Herczfeld reference shows it explicitly in
9 1969 so 50 years, decades.

10 Q. Professor Warren, have you studied the asserted
11 claims of the Poeze patents?

12 A. Yes.

13 Q. And do you have an opinion on whether or not the
14 Poeze claims describe anything new or novel?

15 A. My opinion is that they do not. In fact, the
16 ideas or teachings are quite old.

17 Q. We're going to turn next, then, to RDX-818, the
18 next slide, RDX-819.

19 Professor Warren, have you studied the Lumidigm
20 patent, RX-411?

21 A. Yes.

22 Q. How did you first become aware of the company
23 Lumidigm?

24 A. I learned of Lumidigm as a spinoff from Rio
25 Grande Medical Technology, and I knew about them when I

1 worked at Sandia in Albuquerque in the mid-'90s.

2 Q. How did you first become aware of the Lumidigm
3 '212 patent?

4 A. I found this patent when I was doing a recessed
5 detector search online.

6 Q. Can we call it Lumidigm for short?

7 A. Yes, that's fine.

8 Q. How would you characterize Lumidigm's
9 disclosures?

10 A. The spec -- I think the real novelty is in the
11 idea of a personal identification system that uses liveness
12 as an additional indicator.

13 But one of the other benefits of the
14 specification is that it includes a collation of what was
15 known about the time of optical sensor heads that were used
16 in reflectance mode for spectroscopy purposes in terms of
17 their various LED and photodiode detector layouts.

18 Q. We're going to pull on to the screen RX-411,
19 Figures 3 through 7B.

20 What does Lumidigm describe in connection with
21 these figures?

22 A. These figures are various examples or exemplary
23 ideas of ways to lay out a variety of sources and detectors
24 in reflectance mode on a sensor such as this, including in
25 radial and rectilinear and Cartesian layout.

1 Q. Does Lumidigm say anything about when you might
2 want to use various of these iterations of LEDs and
3 photodiodes?

4 A. Well, Lumidigm states that any one of the given
5 sources, for example, can be sets of LEDs, and any one of
6 the given detectors can be a single detector or a plurality
7 or an array of detectors.

8 And, generally, with regard to how they might be
9 used, there's a section in the spec called extended
10 functionality that speaks to many different application
11 areas.

12 Q. We're going to put on the screen Figs. 8A, 8B,
13 and 8C from the Lumidigm patent.

14 What was Lumidigm illustrating in these figures?

15 A. These three figures illustrate portable
16 embodiments of this particular sensing approach. Key fob on
17 the left, Figure 8A, Figure 8B would be a watch embodiment,
18 and Figure 8C would be an embodiment on the surface of a
19 phone.

20 Q. And what does Lumidigm say about the types of
21 LEDs and photodiodes you can use in any of these
22 embodiments?

23 A. Lumidigm states, with regard to any of these
24 portable embodiments, that any of the sensor geometries that
25 are presented in the specification can be applied.

1 And what I mean by that specifically is Figs. 1
2 through 7, for example, all show different layouts of sensor
3 heads, but additionally the specification itself describes
4 different geometrical layouts, different signal management
5 techniques, including what it calls a compound curvature
6 that would essentially relate to the shape of the sensor
7 head itself.

8 Q. We're going to turn to the next slide, then.

9 Were you here for Ms. Swaroop's opening
10 statement?

11 A. I was, yes.

12 Q. Did you hear her describe Lumidigm's functions as
13 a wish list?

14 A. Yes, I did.

15 Q. Have you studied the functions referenced in the
16 Lumidigm patent that these devices can perform?

17 A. I have, yes.

18 Q. And how would you characterize these functions?

19 A. I would characterize these functions as known
20 applications in reflectance spectroscopy where one might
21 want to employ then a reflectance mode sensor.

22 A fruit ripeness example is a good one. While
23 that sounds esoteric in this context, this has been used
24 with Japanese fruit markets forever as a means to assess
25 fruit quality.

1 Q. And Professor Warren, have you compared
2 Lumidigm's disclosures to the asserted Poeze claims?

3 A. Yes.

4 Q. And what have you concluded?

5 A. My conclusion is that Lumidigm invalidates every
6 one of those independent claim limitations for those
7 asserted patents.

8 Q. And have you reached an alternative opinion on
9 whether Lumidigm alone would, at a minimum, render them
10 obvious?

11 A. Yes. My alternative opinion would be that these
12 claim limitations would be obvious in view of Lumidigm.

13 Q. If we could turn to the next slide.

14 In reaching your opinions, what level of skill
15 did you assume a person of skill in the art would have had
16 in July of 2008?

17 A. I've accepted this definition, which is a person
18 with a bachelor's degree in a discipline related to either
19 electrical, computer, or software technologies, plus one to
20 two years of work experience including with physiological
21 monitoring tools, or, alternatively, a master's degree in
22 less than a year of related experience.

23 Q. We're going to show on the next slide your claim
24 chart for 501, claim 12, and we're going to turn to the
25 preamble of that claim.

1 How does Lumidigm teach the preamble of claim 1
2 from which claim 12 depends?

3 A. So the preamble is a well-known idea. The
4 thought here is that you have a user-worn device that
5 measures a physiological parameter of a user, and Lumidigm
6 teaches this explicitly through, we'll say Figure 8B as an
7 example, which is a wristwatch embodiment.

8 This is also addressed in column 11 in the spec,
9 which speaks to the wristwatch and says that any of the
10 sensor geometries that were disclosed can apply to this
11 particular application, meaning all of the other embodiments
12 in Figures 1 through 7 as well as the information that's in
13 the text itself.

14 Q. We're going to turn, then, to the next slide.

15 How does Lumidigm teach element 1A?

16 A. So this element speaks to three light-emitting
17 diodes, which, as I noted, have been known for many decades.

18 Lumidigm provides a specific example in Fig. 6,
19 for instance, where there are three LEDs on the same side of
20 a reflectance sensor head, but, in addition, Lumidigm states
21 in column 6 that these light-emitting diodes which can be
22 either at the same wavelength or at different wavelengths
23 can also consist of light sources that include sets of LEDs.

24 Q. We're going to turn to the next slide.

25 How does Lumidigm teach element 1B?

1 A. So element 1B is, again, quite well-known. It
2 speaks to three photodiodes. I'll use the same example as
3 in the prior claim limitation, which is Fig. 6 in Lumidigm,
4 which describes a sensor head in reflectance mode with three
5 photodiodes and three LEDs.

6 As a means of explanation, in column 6, Lumidigm
7 notes that this detector can comprise a single element, a
8 plurality of elements, or one or two-dimensional array,
9 meaning any one of these detectors, and that they can be
10 photodiodes.

11 And I underlined in red the indium gallium
12 arsenide material as well as silicon, which are typical
13 photodiodes for this wavelength range.

14 Q. Is there any doubt in your mind that that
15 reference to indium gallium arsenide and silicon would
16 connote a photodiode to a person of skill in the art?

17 A. No. That's obvious.

18 Q. If we could turn to the next slide.

19 How does Lumidigm teach the second part of
20 element 1B?

21 A. So this is another well-known principle where you
22 arrange your, in this case photodiodes and LEDs, on an
23 interior surface, and your photodiodes are then configured
24 to receive light attenuated by the tissue of the user. This
25 is illustrated well in Lumidigm Fig. 2.

1 So in Fig. 2 the red items are LED sources, each
2 of which sends light or photons into the tissue, and tissue
3 is normally forward-scattering, but you can get it to
4 reflect light back. And in this case the light does reflect
5 back to a center photodiode, which is located in, we'll say,
6 a recessed well or cavity in the reflectance sensor head.

7 In this case the light does represent light that
8 has been attenuated or has propagated through tissue
9 consistent with Lumidigm column 3, and column 7, which also
10 addresses the tissue optical properties that would change
11 what you see at the detector.

12 Q. We're going to turn to the next slide.

13 How does Lumidigm teach element 1C?

14 A. So element 1C, again, it's a well-known idea of a
15 protrusion that's over the interior surface, which is the
16 surface that holds the sources and detectors, the protrusion
17 comprises or includes a convex surface.

18 Lumidigm addresses this directly in column 7,
19 where the spec states that the sensor head can have a
20 compound curvature on the optical surface, and the spec
21 teaches that this has several benefits. One is to match the
22 profile of the device itself on the exterior, but also to
23 incorporate ergonomic features, meaning comfort and
24 usability for the user, features that allow for good optical
25 and mechanical coupling, or for other technical or stylistic

1 reasons.

2 Q. What would a person of skill in the art have
3 understood in July of 2008 from this teaching?

4 A. Well, it was already well-known that a convex
5 curvature itself could be a useful element in increasing
6 signal quality. So a person of ordinary skill would see the
7 words "compound curvature" and realize that a practical
8 implementation of this would be a convex surface.

9 Q. If we could turn to the next element.
10 How does Lumidigm teach element 1D?

11 A. So element 1D, again, is quite well-known. This
12 is a plurality of openings where an opening allows light to
13 reach a detector. And these openings are positioned over
14 the three photodiodes individually.

15 Lumidigm addresses this generally and
16 specifically. Lumidigm addresses it specifically in Fig. 6,
17 knowing that, when you read the spec, the cross-section in
18 Fig. 6 would be similar to Fig. 2, where each of the
19 photodiodes would be recessed and there would be an opening
20 over each photodiode.

21 And in terms of explanation, there is a very nice
22 but terse explanation in column 8, where the spec states to
23 the idea that, if you recess the photodiodes or detectors
24 from the sensor surface in an optically opaque material, you
25 can reduce the amount of light that's detected without going

1 through tissue, meaning, you don't want the light that goes
2 straight from the emitter to the photodiode and has not
3 passed through tissue first.

4 Q. So what would a person of skill in the art in
5 July of 2008, then, have understood about how many openings
6 you should have in the sensor head?

7 A. Well, they would have understood that the number
8 of openings wasn't really constrained. In this case it's
9 mapped to the number of photodiodes, for example, that
10 exist.

11 Q. Why don't we turn to the next element, 1E.
12 How does Lumidigm teach this?

13 A. So element 1E is a little bit longer, but it
14 essentially speaks to the well-known idea of opaque lateral
15 surfaces, which comprise each of the openings, and this is
16 because the detector head or the protrusion would be made
17 out of opaque material.

18 These openings would allow light to reach the
19 photodiodes and the opaque lateral surfaces would have a
20 role of helping to avoid light piping through the
21 protrusion.

22 This idea is, again, illustrated in Fig. 2 where
23 the gray area in the sensor head is meant to represent the
24 opaque material in the viewgraph, and, as a result, when
25 there is an opening, then put in that material, the opaque

1 lateral surfaces would exist, and their purpose would be as
2 noted in column 8, to perform optical blocking for light
3 shunts or what is called light piping in this matter.

4 Q. If we could turn then to element 1F. How does
5 Lumidigm teach this?

6 A. So this is, again, a well-known idea where a
7 processor is needed to manage the overall set of events. In
8 this case the processor will receive one or more signals
9 from the photodiodes and then calculate a measurement of the
10 physiological parameter of the user based on those signals.

11 Lumidigm incorporates Fig. 9, which itself
12 includes a functional block diagram that has two blocks that
13 speak directly to processors, one is in the upper left, and
14 the other is called processing acceleration, which is kind
15 of a digital signal processor or a special feature
16 arrangement in the device.

17 And there are several excerpts in the spec, I
18 will note, columns 3 and 9 and 12, which describe the idea
19 that the processor performs the standard function, which is
20 to operate the device or operate the biometric sensor. One
21 of those roles is also to digitize and record those data.

22 And then in column 12 the spec speaks to the idea
23 that any of the elements in Fig. 9 can either be arranged on
24 the same device, meaning in an integrated manner, or
25 separated out geographically or in a distributed way

1 depending on the needs of the system.

2 Q. If we could turn to the next slide.

3 Before we -- actually, how does Lumidigm teach
4 the dependent claim 12, the limitations of dependent claim
5 12?

6 A. So claim 12 is -- it's honestly a little bit of
7 an obvious statement, but the idea here is that, if you have
8 a convex surface and you position it next to tissue, any
9 pressure at all will conform the tissue into a convex shape
10 or, excuse me, a concave shape just because it would then
11 match the shape of the convex surface of the protrusion.

12 Q. If we could turn to the next slide, and before we
13 turn to the next claim, I do want to go back to the preamble
14 slide just one more time and Lumidigm's description of its
15 watch embodiment.

16 What does Lumidigm say about the geometries that
17 can be included in its watch?

18 A. Lumidigm states, and this is with regard to
19 Fig. 8B, by the way, the watch embodiment, Lumidigm states
20 in column 11 that any of the sensor geometries previously
21 disclosed or other equivalent configurations can be used for
22 this application.

23 And what the spec is saying is that the
24 geometries presented in Figs. 1 through 7 or the textual
25 descriptions, which, again, would include the compound

1 curvature or the convex surface, any of those light
2 management features could be incorporated into an
3 embodiment, for example, such as 8B, which would be, we'll
4 call it, the watch embodiment.

5 Q. If we could turn to the next slide, then.

6 What was your conclusion about how Lumidigm
7 compares to '501 claim, 12?

8 A. My opinion is that Lumidigm as a singular
9 reference anticipates or discloses every one of the claim
10 limitations present in '501, claim 12.

11 Q. We're going to turn, then, to the next claim,
12 '502, claim 22.

13 And am I correct that you have already explained
14 the basis for your opinion that Lumidigm meets '502 elements
15 19C and 19E in connection with your opinions on the similar
16 elements of '501, claim 12?

17 A. Yes.

18 Q. Let's turn, then, to the preamble of '502, claim
19 22, or the preamble of independent claim 19.

20 How does Lumidigm teach this?

21 A. This preamble is similar to the prior preamble,
22 but it also adds the well-known idea of oxygen saturation --
23 excuse me -- oxygen saturation as a result.

24 Lumidigm, again, addresses this through the
25 wristwatch embodiment, so we'll go back to Fig. 8B, where

1 the wristwatch performs the functionality of, not only the
2 biometric sensor or reader, but also extended functionality
3 as a portable device that's mentioned later in the
4 specification where I will go to, not only columns 11 for
5 the wristwatch description, but also column 19, where there
6 are two descriptions to a hemoglobin monitor, or two
7 references to a hemoglobin monitor, but also to a system
8 that can measure oxygenation and/or hemoglobin levels in the
9 blood, or otherwise stated, to quantify oxygenation levels.

10 Q. Professor Warren, would a person of skill in the
11 art in July of 2008 have needed any further details than
12 these to know how to implement pulse oximetry functionality
13 in Lumidigm's watch embodiment in 8B?

14 A. No, because it was a standard reflectance mode
15 sensor application. We had already seen a number of
16 publications in that area, and we got it to work ourselves
17 in the laboratory several years prior. So a person of
18 ordinary skill would not have needed any additional
19 information to make that work in this kind of an embodiment.

20 Q. When you said we did it ourselves in the
21 laboratory, were you referring to the measurements taken at
22 the wrist?

23 A. Yes. I did it myself in the mid-'90s, and then
24 when I started at Kansas State my own students built these
25 sensors and worked with them on their wrists.

1 Q. You were here for the testimony of the Apple
2 witnesses; is that correct?

3 A. Yes.

4 Q. So you're aware that it took Apple many years to
5 implement blood oxygen measurements in the Apple Watch?

6 A. Yes, I am.

7 Q. And why did it take Apple so long, in your
8 opinion and from the evidence you've seen, why did it take
9 Apple so long to implement blood oxygen measurements in the
10 Apple Watch?

11 A. Apple had a set of significant challenges to
12 overcome. Not only were they severely limited on real
13 estate, but they were also limited on processor capabilities
14 given the amount of other applications that need to run also
15 on the watch.

16 And even though these -- the simple light
17 management problems such as addressed in the Poeze patents
18 had already been essentially solved in many cases, there
19 were still nuances of those light management features in
20 addition to the algorithms that needed to be developed to
21 make that entire package come together.

22 Q. Great. Let's turn to the next element, then,
23 22A -- 19A.

24 MR. CLAASSEN: Your Honor, I want to object to
25 that last question. That opinion testimony was not

1 disclosed in Dr. Warren's report.

2 MS. VREELAND: Your Honor, we can put on the
3 screen the exact paragraph that discloses that. It's
4 paragraph 244 of his opening report.

5 JUDGE BHATTACHARYYA: Please go ahead.

6 MS. VREELAND: I'm actually going to display 243
7 and 244 for the context, and it's paragraphs 243 and 244.

8 Just for context, Your Honor, the discussion of
9 the claim 22 Preamble refers to the earlier reference to
10 measuring blood oxygen, one of the '501 dependent claims
11 that is no longer in the case, but I'll show you the text
12 there that's incorporated by reference.

13 So in paragraph 243 Dr. Warren provided the
14 opinion that he just gave about how a person of skill in the
15 art would understand how to implement Lumidigm's device in a
16 pulse oximeter, and in paragraph 244 he explained how the
17 Apple Watch -- the reasons why the Apple Watch took longer
18 to develop and the challenges of the Apple Watch.

19 MR. CLAASSEN: Your Honor, slide -- the processor
20 that was mentioned in slide 29 that Dr. Warren was
21 discussing is not mentioned in this paragraph 244.

22 JUDGE BHATTACHARYYA: Could I see the remainder
23 of 244, I just want to read the whole paragraph 244, and
24 then slide 29.

25 MS. VREELAND: It was the preamble for claim 22.

1 Your Honor, for context, he was explaining why it
2 took Apple longer to implement the blood oxygen measurement
3 in the Apple Watch.

4 MR. CLAASSEN: Your Honor, if we could go back to
5 the report.

6 JUDGE BHATTACHARYYA: Okay. Could you clarify,
7 Mr. Claassen --

8 It's Mr. Claassen, correct?

9 MR. CLAASSEN: That's correct, Your Honor. Thank
10 you.

11 JUDGE BHATTACHARYYA: Could you clarify exactly
12 what you're objecting to in terms of his testimony?

13 MR. CLAASSEN: Your Honor, my understanding of
14 what's stated in paragraph 244 is that Dr. Warren is
15 discussing -- I'm trying to read it on the screen,
16 Your Honor -- the attractiveness and accuracy and nothing
17 about a processor or any specific use. He was just
18 describing with respect to the slide that was presented.

19 MS. VREELAND: May I respond, Your Honor? He
20 says in the paragraph that begins, "I understand," I
21 understand it took years of work by the Apple engineers to
22 develop a successful wrist-worn pulse oximeter for consumers
23 that is also aesthetically pleasing and able to function in
24 combination with the many other features of the Apple Watch.

25 I think that's what Professor Warren was just

1 explaining, that you had to put all that software together
2 in a small watch.

3 MR. CLAASSEN: Your Honor, if the testimony is
4 limited to what he states exactly in his report, we withdraw
5 the objection, but we would like the testimony to be exactly
6 what's in his report.

7 MS. VREELAND: Your Honor, I would certainly be
8 happy to do that.

9 JUDGE BHATTACHARYYA: Okay. Why don't the
10 parties -- if the parties can work it out, that's wonderful.
11 We can revisit this later.

12 Q. We'll go on to the next element, then.

13 Can you explain how Lumidigm teaches -- if we
14 could go to 19A and 22 --

15 A. Yes, this is a pair of claim limitations that are
16 very similar in nature. They both speak to a plurality of
17 emitters -- in the second case at least four emitters.

18 In the first case the plurality would comprise at
19 least two light-emitting diodes, and in the second case each
20 of the plurality of emitters would be a respective set of at
21 least three LEDs.

22 So a plurality of sets of two or four emitters
23 each of which had at least a set of three. This is a
24 well-known idea in the literature, as I noted earlier, but
25 with respect specifically to Lumidigm, Lumidigm includes

1 Figures 3 and -- let's see, 5, 7A and 7B -- where Lumidigm
2 states that each of the locations for the LEDs, which,
3 again, are the red dots on these figures, each of those
4 locations can be comprised of LEDs with the same or
5 different wavelengths, but also the light sources themselves
6 can include sets of LEDs --

7 Q. Why don't we go --

8 A. -- at each location.

9 Q. Let's go, then, to the next limitation.

10 How does Lumidigm teach element 19B?

11 A. So this is the well-known idea of four
12 photodiodes arranged on the user-worn device. Lumidigm
13 addresses this specifically in Fig. 7A and 7B, where 7A
14 incorporates five photodiodes in a linear arrangement, and
15 Fig. 7B incorporates an 8x8 grid of 64 photodiodes.

16 Q. Let's turn, then, to element 19C or 19D, excuse
17 me.

18 How does Lumidigm teach this?

19 A. The notion of an optically transparent material
20 is, again, quite well-known where the material is in each of
21 the openings. Lumidigm states in column 8 that an optical
22 relay, which is not shown in the diagram, between the sensor
23 and sensor surface and the skin, and helped to transfer
24 light by directionally either from the light source from the
25 skin or from the skin back to the detector.

1 And I've illustrated, for example, a well-known
2 optical relay, which is a lens, in the opening of the
3 photodiode that's depicted in Fig. 2, but Lumidigm also
4 states that you can use fiber-optic faceplates for this
5 purpose, where you could use a single faceplate for multiple
6 openings or you could do an individual -- a person of skill
7 would know that you could do an individual faceplate for
8 each of the individual openings as a means to provide light
9 but still optimize the process.

10 Q. And what about the example, the fiber bundle,
11 what would a person of skill in the art understand about
12 that?

13 A. Right. This is one that I mentioned in my report
14 where you could use a fiber bundle to essentially direct the
15 light from a portion of tissue straight to the detector as a
16 means to optimize the detection process.

17 Q. And in July 2008, what materials would a person
18 of skill in the art recognize a fiber-optic faceplate or a
19 fiber bundle would be made of?

20 A. The individual fibers would have a glass core and
21 then either a glass or a plastic cladding and then a
22 protective layer. A fiber-optic faceplate, by the way, is
23 like a bundle of spaghetti that you hold in your hand and
24 you cut sideways so that you get all the little fibers lined
25 up with one another.

1 Q. Why don't we go to the next element then, 19E,
2 excuse me, dependent claims 20 and 21.

3 How does Lumidigm teach these?

4 A. These claims are paired -- they essentially
5 relate to the well-known notion that, if your processor can
6 receive a temperature signal, in this case from a
7 thermistor, it can then adjust the operation of the
8 user-worn device.

9 The importance of this, by the way, is that LEDs
10 change their behavior depending on temperature. They, for
11 example, will change their center wavelength if the
12 temperature increases or decreases.

13 So these two claims speak to that, as does
14 Lumidigm. And we can look at Lumidigm, for example, in
15 column 14, where Lumidigm states the goal to perform
16 explicit corrections to account for sensor to sensor
17 variations or environmental influences of temperature that
18 would involve the processor depicted in Fig. 9, and a person
19 of ordinary skill would realize that such a temperature
20 measurement could easily be done with a thermistor.

21 Q. If we could turn to the next element. Let me
22 actually ask you about your conclusion.

23 What did you conclude, then, about how Lumidigm
24 compares to '502, claim 22?

25 A. My opinion is that, as a single reference,

1 Lumidigm anticipates or discloses every one of these
2 individual claim limitations.

3 Q. Let's turn then to '502, claim 28.

4 And am I correct that you have already explained
5 the basis for your opinion that Lumidigm meets the preamble
6 and elements 28D, E, F, G, and in connection with your
7 opinions on the similar elements of the earlier claims?

8 A. Yes.

9 Q. Let's turn to element 28A, then.

10 How does Lumidigm teach elements 28A and 28B?

11 A. So these claims are similar to the earlier ones
12 that -- but in this case we have a first set of LEDs and a
13 second set of LEDs where, within the first set, there is the
14 emission of light at a first wavelength and a second
15 wavelength, and in the second set of LEDs there is the same,
16 meaning an emission of light at the first wavelength and at
17 the second wavelength.

18 And I'll go back in this case to this well-known
19 idea as illustrated in Lumidigm Figs. 3 and 5 and 6 and 7A
20 and 7B, which --

21 Q. Let's turn -- I'm sorry -- turn to the next slide
22 before your further explanation.

23 How does Lumidigm teach the first wavelength and
24 the second wavelength?

25 A. Right. I've illustrated here, and in this case

1 I've included an animation that I thought would help, where
2 every source location that is depicted in any of these
3 figures, meaning 3, 5, 6, 7A and 7B, is a location where
4 then multiple wavelengths would be present, for example, in
5 a multi-chip LED package.

6 And I've also included an excerpt from a
7 publication that was incorporated by reference in the
8 Lumidigm -- this is by the same author -- I included Fig. 6
9 from RX-0411 where Fig. 6 is RX-0460 -- as a means to
10 illustrate that in static locations this specification
11 teaches the idea of multiple wavelengths in sets that can be
12 many, many LEDs.

13 Q. Okay. I'd like to quickly run through the rest
14 of the elements of claim 28. We're going to turn to the
15 next slide.

16 How does Lumidigm teach element 28C?

17 A. So the only new thing about 28C is that the four
18 photodiodes should be arranged in a quadrant configuration,
19 which, again, was quite well-known. Lumidigm illustrates
20 this in Fig. 7B, which depicts an array or two-dimensional
21 array of photodiodes.

22 And I've illustrated with a green cross four
23 quadrants that you could use within this embodiments. One
24 of ordinary skill could essentially choose any four of the
25 photodiodes within this arrangement and make those into a

1 quadrant and then include an opening over each one.

2 Q. Let's turn to the next element, then, 28H.

3 How does Lumidigm teach this, if you could just
4 briefly tell us?

5 A. Yeah. This is the idea of an opaque wall, which
6 is well-known, where the opaque wall extends from the
7 interior surface to the surface of the protrusion. That's
8 illustrated by the gray material in Fig. 2.

9 Q. Okay. If we could go to the next element, 28J.
10 How does Lumidigm teach this?

11 A. A network surface configured to wirelessly
12 communicate an oxygen saturation was also a well-known idea.

13 Lumidigm teaches this in the Fig. 8B embodiment
14 through element 103, which is a wireless communication
15 depiction, as well as in Fig. 9, which has a communication
16 system block.

17 Additionally, in columns 13, 11 and 19, Lumidigm
18 describes the teaching of a wireless link or an interfacing
19 connection where the wireless link can also be embedded into
20 the fob, for example, or the watch, and that it could
21 communicate oxygenation levels as quantified by the device.

22 Q. Let's turn to the next slide.

23 How does Lumidigm teach element 28K? Again, you
24 can go quickly at this point.

25 A. Yeah, element 28K is a touchscreen interface

1 which was well-known. That's embodied in the highlighted
2 portion in the smartphone and PDA, which both would have had
3 at the time.

4 Q. Would a person of skill in the art have
5 recognized that that could also be incorporated in a watch?

6 A. Yes, it could be incorporated in any visual
7 depiction for a portable device.

8 Q. Let's go to the next slide.

9 How does Lumidigm teach element 28L?

10 A. Element 28L is the well-known idea of storage.
11 This is addressed in three separate boxes in Fig. 9, and in
12 columns 12 and 13 Lumidigm addresses the idea that storage
13 could be used to store the spectra that were obtained
14 meaning the information obtained from the individual.

15 Q. If we could turn to the last slide.

16 How does Lumidigm teach 28M?

17 A. Lumidigm depicts a strap in Fig. 8B.

18 Q. And if we could turn to the next slide, what did
19 you conclude, then, about '502, claim 28?

20 A. My opinion is that Lumidigm anticipates every one
21 of these individual claim limitations as a single reference.

22 Q. Why don't we turn, then, to '648, claim 12, and
23 am I correct that you've already explained the basis for
24 your opinion that Lumidigm teaches the elements of
25 independent claim 8 and dependent claim 12 so that we can

1 go -- except the housing, and we'll go to the housing?

2 A. Yes.

3 Q. How does Lumidigm teach the housing in element
4 8H?

5 A. Lumidigm states in column 11 that the wristwatch
6 has a case.

7 Q. Great. And then what did you conclude, then, for
8 '648, claim 12, if we were to go to the next slide?

9 A. My opinion is that Lumidigm anticipates or
10 discloses every limitation of claim 12.

11 Q. Let's turn, then, to claims 24 and 30.

12 Am I correct that you've already explained the
13 basis for your opinion that Lumidigm teaches the elements of
14 independent claim 20?

15 A. Yes.

16 Q. Let's turn to dependent claim 24.

17 How does Lumidigm teach this?

18 A. The idea of a protrusion comprising an opaque
19 material that prevents light piping is a restatement of what
20 we've already addressed.

21 Lumidigm discusses this in Fig. 2 and in column
22 8, which states that optically opaque material can be used
23 as an optical blocking mechanism.

24 Q. And, finally, if we were to turn to dependent
25 claim 30, how does Lumidigm teach this?

1 A. This claim addresses chamfered edges which were a
2 well-known mechanical principle at the time. Those
3 chamfered edges would have been included in the face where
4 the edges of the face of the watch on Fig. 8B.

5 Additionally, those chamfered edges would be
6 elements that addressed in column 7 where the compound
7 curvature that we know represents a convex surface, would
8 incorporate ergonomic features, and it's those chamfered
9 edges that make for a comfort issue with regard to the usage
10 of the watch.

11 Q. So if we could turn to the next slide, what did
12 you conclude then about '648, claims 24 and 30?

13 A. My opinion is that Lumidigm anticipates all of
14 the limitations of claims 24 and 30.

15 Q. Great. So I'd like to go to the next slide.

16 I'd like to ask you about a few of the
17 limitations that, if we could turn one more slide, that
18 Masimo contends are missing in Lumidigm?

19 Do you agree that Masimo -- do you agree that
20 Lumidigm is missing any of these limitations?

21 A. No, I disagree.

22 Q. And if we -- do you have an opinion on whether or
23 not other prior art discloses those same limitations that
24 Masimo contends are missing?

25 A. Yes, there's much other prior art, but I've

1 looked at Seiko 131 and Cramer for examples of additional
2 references as well as Webster and Apple 047.

3 Q. And which combinations are you relying on for
4 which claims?

5 A. Well, for all claims, Lumidigm in combination
6 with Seiko 131 and Cramer, but, specifically, for '502,
7 claim 22, Lumidigm in combination with Webster or Lumidigm,
8 Seiko and Cramer in combination with Webster, and then
9 specifically for '502, claim 28, Lumidigm and Webster in
10 combination with Apple 047, or Lumidigm, Seiko, Cramer and
11 Webster in combination with Apple 047.

12 Q. And do you have an opinion on whether or not a
13 person of skill in the art would have been motivated to make
14 these combinations in July of 2008?

15 A. Yes. In all cases Lumidigm states the need
16 expressly for such combinations and a person of ordinary
17 skill would have easily gone to the references to find them.

18 Q. Let's turn quickly, then, to the next slide, and
19 Seiko, RX-666. When was Seiko filed?

20 A. Seiko was filed in July 1996.

21 Q. And at a high level, what does it disclose?

22 A. Seiko discloses an embodiment very similar to one
23 that is in a Poeze figure, which is a pulse oximeter sensor
24 on a finger connected via cable to a display unit that's
25 worn on the wrist of the user.

1 Q. And if we were to turn to the next slide, what
2 does Seiko describe in its Figure 28 and the text in column
3 19?

4 A. Seiko discloses what's called a light
5 transmittance plate, which is stated to be a convex surface.
6 And the purpose of this convex surface, as stated in Seiko,
7 is to move residual blood out of the way and increase the
8 quality of the measurement.

9 Q. And let's turn, then, to the next slide, Cramer,
10 RX-670. When was Cramer filed?

11 A. Cramer was filed in 1978.

12 Q. At a high level, what does it disclose?

13 A. Cramer discloses a light-based wristwatch for
14 pulse rate measurements.

15 Q. And if we were to turn to the next slide, what
16 does Cramer show -- what does it say about the embodiment of
17 its sensors shown in Figs. 2, 3, and 6?

18 A. Cramer describes what it calls a raised boss
19 area, which is essentially a convex protrusion. It consists
20 of two concentric raised annular areas of opaque material,
21 and those areas surround the four photodiodes, and they also
22 separate four photodiodes from the central emitter or LED.

23 Q. And you said that -- you mentioned that Cramer
24 has four photodiodes. What does Cramer say about those
25 photodiodes?

1 A. Cramer notes that an example of a suitable
2 detector is a Clairex CLT 2160 photodiode.

3 Q. If we were to turn to the next slide, do you
4 recognize RX-1221?

5 A. Yes. This is a depiction from the Clairex data
6 sheet, which depicts the can detector itself on the right
7 where there's a window or a lens on the top, and then the
8 photodiode sits down within that can at the focal point of
9 the lens to receive the detected light.

10 Q. Okay. So why don't we turn, then, to the next
11 slide, and I'd like to ask you about the limitations in all
12 of the Poeze claims relating to a protrusion with a convex
13 surface, and the limitation in claim 12 relating to
14 conforming the tissue into a concave shape.

15 If we were to turn to the next slide, how does
16 Seiko disclose these limitations?

17 A. Seiko discloses the protrusion explicitly as a
18 means to increase the signal quality associated with the
19 light-based measurement via a convex protrusion. It's
20 called a light transmittance plate in that example.

21 Q. And how does Cramer teach these limitations?

22 A. Cramer teaches that, with regard to the raised
23 boss area, that that boss area must be pressed into tissue
24 in order to get a measurement, and that you can do that
25 measurement with minimum discomfort to the user.

1 Q. And if we were to turn to the next slide, what is
2 the basis for your opinion that a person of skill in the art
3 would have been motivated to combine Lumidigm's watch with
4 Seiko's and Cramer's teachings of protrusions with convex
5 surfaces?

6 A. So Lumidigm already expressly states that the
7 curvature on the optical surface could be a compound
8 curvature, which in the case of a convex surface would
9 natural mean a concave shape for the applied tissue. And a
10 person of ordinary skill even independent of that expressed
11 disclosure would know that they could go to a reference like
12 Seiko or Cramer to teach different ways that you might
13 incorporate a convex protrusion into one of these
14 reflectance sensors.

15 Q. Let's turn, then, to the next set of limitations
16 in all the claims relating to openings over photodiodes with
17 opaque surfaces to avoid, reduce, or prevent light piping.

18 If we could turn to the next slide, how does
19 Seiko -- how do Seiko and Cramer teach these limitations?

20 A. The openings and patent and trademark surfaces in
21 Seiko are rendered in the opening above the photodiode in
22 Fig. 28, for example. And Seiko also incorporates opaque
23 material in its casing. Cramer teaches the similar notion
24 of openings with opaque surfaces with regard to the opaque
25 region that comprises, not only the sensor head, but the

1 boss regions, all of which help to prevent light piping
2 because of the fact that they are indeed opaque material.

3 Q. And what about Cramer's can?

4 A. Yeah, the can itself adds another layer of what
5 we could say is opaque material. A person of ordinary skill
6 would realize that the can would be made from aluminum or
7 stainless steel or some material that was impervious to
8 light as a means to prevent light piping.

9 Q. If we could turn to the next slide.

10 What, then, is the basis for your opinion that a
11 person of skill in the art would have been motivated to
12 combine Lumidigm's watch with Seiko's and Cramer's teachings
13 of openings over photodiodes with opaque surfaces to avoid
14 reduce or prevent light piping?

15 A. Well, again, it's a twofold response. The first
16 note is that Lumidigm expressly states the need for openings
17 over detectors that are themselves recessed in opaque
18 material, but, regardless of that disclosure, which was
19 well-known at the time, a person of ordinary skill could go
20 to Seiko and Cramer and a number of other references that
21 teach this particular concept.

22 Q. Let's turn to the next slide, then, and the
23 limitations in '502 -- in the '502 and '648 claims relating
24 to optically transparent materials or windows within or
25 across the openings.

1 If we could turn to the next slide.

2 How do Seiko and Cramer teach these limitations?

3 A. In Seiko, for example, these limitations are
4 taught through the light transmittance plate that I already
5 mentioned. It's a transparent material that allows light to
6 reach the photodiode detector.

7 In Cramer, windows or transparent materials are
8 taught two different ways. The first one, for example, is
9 the lens that exists at the top of the can above the
10 photodiode in this depiction, and the other is the windows
11 that are between the raised boss regions as depicted in
12 Fig. 6.

13 Q. If we could turn to the next slide.

14 What is the basis for your opinion that a person
15 of skill in the art would have been motivated to combine
16 Lumidigm's watch with Seiko's and Cramer's teachings on the
17 use of optically transparent materials and windows over or
18 within openings -- over or within the openings over
19 photodiodes?

20 A. The basis for my opinion is, first, that Lumidigm
21 expressly teaches this idea through the notion of an optical
22 relay, which is a general way to say a transparent material
23 for allowing light to pass.

24 And, in addition, independent of that idea, a
25 person of ordinary skill would have known that windows could

1 be used and that Seiko 131 and Cramer would be suitable
2 references to consult.

3 Q. Finally, then, let's turn to the limitation in
4 the next slide -- limitation in claim 30 relating to a
5 protrusion with chamfered edges.

6 How do Seiko and Cramer disclose this limitation?

7 A. Seiko discloses chamfered edges in several
8 figures. I've noted Fig. 5 and Fig. 28 here where chamfered
9 edges are illustrated in Fig. 5 at the edges of the
10 protrusion, and in Fig. 28 on the opposite side of the
11 sensor as a comfort mechanism.

12 And in Cramer, chamfered edges are incorporated
13 in Fig. 3, as an example, where a chamfer allows the edge to
14 transition from the main watch body to the raised boss area
15 without a sharp, 90-degree orthogonal edge that would be
16 uncomfortable for the user.

17 Q. And if we were to turn to the next slide, what is
18 the basis for your opinion that a person of skill in the art
19 would have been motivated to combine Lumidigm's watch with
20 Seiko's and Cramer's teachings of protrusions with chamfered
21 edges?

22 A. The basis for my opinion, again, is twofold. The
23 first thought is that the compound curvature and the need
24 for ergonomic features is expressly stated in Lumidigm.
25 Additionally, a person of ordinary skill would understand

1 that chamfered edges have been around for many decades as a
2 means to soften transitions between surfaces and make items
3 such as watches more wearable.

4 Q. If we could turn to the next slide, I'd like to
5 ask you about this combination of features that we've just
6 discussed -- the convex surface, the openings, the windows,
7 and the chamfered edges.

8 What is the basis for your opinion that a person
9 of skill in the art would have been motivated to combine all
10 these features in Lumidigm's watch?

11 A. Well, these features are well-known management
12 features, and as a watch embodiment, for example, a person
13 of ordinary skill would realize that there had been many
14 other watch embodiments introduced into the literature,
15 including Seiko and Cramer, and that they would then form a
16 natural combination for teaching purposes.

17 Q. Now you mentioned that Seiko and Cramer focused
18 on measuring pulse rate rather than blood oxygen. Does that
19 impact your opinion in any way?

20 A. No, not at all, because the same light management
21 features that you need to incorporate for a single
22 excitation wavelength to allow a pulse rate determination
23 are the same light management features that you need to
24 incorporate with multiple wavelengths to employ pulse
25 oximetry or any other kind of spectroscopy measurement.

1 Q. Would a person of skill in the art have had a
2 reasonable expectation of success in making this
3 combination?

4 A. Yes, the combination had already been done in
5 various forms as I illustrated with my combination slide
6 earlier.

7 Q. If we could turn to the next slide.

8 What did you conclude, then, about the Lumidigm,
9 Seiko, and Cramer combination?

10 A. Well, my conclusion is twofold. My first opinion
11 is that the Lumidigm reference alone discloses and renders
12 these ideas obvious. My second opinion is that Lumidigm
13 combined with Seiko 131 and Cramer as an alternative
14 additionally renders these claims obvious.

15 Q. Let's turn, then, to just two more claims. Claim
16 22 requires, in addition, a thermistor and processors to
17 adjust operations based on a thermistor.

18 At a high level, what was known in the art about
19 the use of thermistors at this time?

20 A. At a high level, a person of ordinary skill would
21 know that a thermistor could be used to monitor temperature
22 and that that knowledge could be used to adjust the
23 calibration of a circuit or a system such as this.

24 Q. Are you aware of other prior art teaching a
25 thermistor for pulse oximetry?

1 A. Yes, there's a lot of teaching out there, but the
2 example I'll use is Webster from 1997.

3 Q. How long have you had a copy of Webster?

4 A. I got a photocopy of the book after it was
5 published in the late 1990s because we couldn't -- the
6 publisher ran out and I kept --

7 Q. I'm sorry.

8 A. And I've kept a copy for 20 years.

9 Q. Could we go to the next slide?

10 How does Webster teach the elements and dependent
11 claims 20 and 21?

12 A. So Webster addresses the idea of compensation for
13 LED temperature changes directly at page 85, where Webster
14 notes that a temperature sensor can be built into the probe
15 along with the LEDs and photodiodes. That idea is
16 illustrated explicitly in Webster in Figure, I believe it's
17 3.4.

18 Q. And if we were to turn to the next slide, what is
19 the basis of your opinion that a person of skill in the art
20 would have been motivated to combine Lumidigm's watch with
21 Webster's thermistor?

22 A. The basis for my opinion is that Lumidigm
23 expressly states this need on its own, meaning, the
24 performing explicit corrections to account for environmental
25 influences of temperature, but, irrespective of what's

1 disclosed in Lumidigm, a person of ordinary skill would
2 realize that a thermistor would be an obvious way to
3 accomplish this mechanism.

4 Q. If we could turn to the next slide, I'd also like
5 to ask you about claim 28.

6 We've discussed the thermistor, but we haven't
7 yet discussed the user interface with a touchscreen.

8 Are you aware of any prior art that a person of
9 skill in the art would have been aware of in July 2008
10 relating to a user interface with a touchscreen?

11 A. This is a well-known mechanism, but I decided to
12 pull Apple 047 as an example of a reference for a
13 touchscreen.

14 Q. And why did you look to Apple art?

15 A. I thought it appropriate given that Apple has
16 such a history in this area and it fit well with the
17 embodiments that we're talking about.

18 Q. If we could turn to the next slide.

19 How does the Apple '047 patent, RX-673, teach the
20 touchscreen in '502 claim 28?

21 A. The central theme of this patent is that, if a
22 device incorporates a touchscreen, and you would then rotate
23 the device, the device would not only change from a portrait
24 to landscape orientation in its display, but it would also
25 display different kinds of information.

1 Q. And if we could turn, then, to the next slide,
2 I'd like to start by asking you about the three pieces of
3 prior art that you've identified for claims 22 and 28 --
4 Lumidigm, Webster, and Apple.

5 What is the basis for your opinion on whether a
6 person of skill in the art would have been motivated to make
7 this combination and would have had a reasonable expectation
8 of success?

9 A. Yeah, a person of ordinary skill would realize
10 that, to add the features of temperature sensing and
11 touchscreen to Lumidigm, they could look to a number of
12 references, but looking to Webster and Apple would be an
13 obvious choice.

14 Q. And what would -- would they have had an
15 expectation of success in implementing that combination?

16 A. They would have, because that combination had
17 already been used in other devices at the time with success.

18 Q. Let me ask you, then, about the broader
19 combination.

20 If we were to turn to the next slide, and if I
21 were to ask you about the broader combination of Lumidigm,
22 Seiko, Cramer, Webster, and Apple 047, what is the basis for
23 your opinion that a person of skill in the art would have
24 been motivated to make that combination?

25 A. This combination, to me, is a three plus one plus

1 plus one. The three elements for the watch all go together.
2 It would be obvious, then, as a person of ordinary skill to
3 add the thermal sensing and the touchscreen elements via
4 Webster or Apple or any number of other references to
5 accomplish this.

6 Q. Would a person of skill in the art have had a
7 reasonable expectation of success?

8 A. Yes. Not only had this been done, but these are
9 known elements. The result would have been known.

10 Q. So let's turn, then, to another issue. I'd like
11 to ask you about the secondary considerations of
12 nonobviousness.

13 Have you considered these in connection with your
14 opinion?

15 A. Yes.

16 Q. And do you have an opinion on whether or not the
17 commercial success of Apple's Series 6 and 7 watches has
18 been due to the claimed inventions of the Poeze patents?

19 A. I do.

20 Q. And what is your opinion?

21 A. Well, my opinion, as a commercial device, at a
22 high level, is that the Apple Watch incorporates a lot of
23 features. The blood oxygen feature is only a small fraction
24 of the percentage of those features. And it incorporates
25 only a small portion of the hardware functionality.

1 Additionally, the limitations that are in the
2 Poeze patent are quite old, and they would really not have
3 been effective in terms of teaching the Apple Watch
4 designers how to implement these light management features.

5 Q. Do you have an opinion on whether or not the fact
6 that Apple spent years working on its watch indicates that
7 Apple could not have achieved the alleged inventions without
8 the Poeze claims?

9 A. No. As I noted, the light management features
10 were known. The issues that Apple had to deal with were
11 issues that related more to building complex functionality
12 into a device that was already quite complex in an
13 environment where there were a lot of other features while
14 they were still under the same constraint to meet the
15 aesthetic and functional needs of a product that would be
16 consistent with their standards.

17 Q. And did you --

18 MR. CLAASSEN: Your Honor, I'm going to object
19 that that's outside the scope of his report.

20 MS. VREELAND: Your Honor, it's in his report at
21 paragraphs 1802 to 1807. I would be happy to display them.

22 JUDGE BHATTACHARYYA: Let's see.

23 MR. CLAASSEN: Your Honor, my response is that
24 that paragraph is, again, about the aesthetics, not the
25 complex functionality.

1 MS. VREELAND: Your Honor, we would certainly be
2 happy to limit the testimony to be consistent with what was
3 in the report. We think it was fully consistent with the
4 report, 1802 to 1806, and specifically 1806.

5 JUDGE BHATTACHARYYA: This is basically the same
6 issue we had before or a similar issue. Can the parties
7 work this out? Otherwise, I will --

8 MS. VREELAND: Yes.

9 MR. CLAASSEN: Yes, Your Honor.

10 JUDGE BHATTACHARYYA: Okay.

11 Q. Let me ask you about, then, about Dr. Kiani's
12 suggestion in his testimony that there was skepticism in the
13 field about the use of curved protrusions before July of
14 2008.

15 Do you agree that there was skepticism in the
16 field on the use of curved protrusions?

17 A. No. It was actually quite the opposite.

18 Q. Let me pull up briefly -- let me turn to the next
19 exhibit and ask you about RX-668, Mendelson's '799 patent.

20 Do you agree that Mendelson expressed skepticism
21 about the use of convex protrusions in pulse oximetry?

22 A. No. The first thought is that Mendelson is not
23 speaking of convex protrusions, but the second thought is
24 that this example is in the context of situations like fetal
25 monitoring or monitors over ribs or a forehead where there's

1 a bone backing right behind the sensor and the tissue, and
2 that, if you press too hard, you move the residual blood out
3 of the way and you don't have any blood left.

4 But that is a really special case with too much
5 applied pressure. Some of the other literature does a much
6 better job of explaining why, indeed, the convex protrusion
7 itself is a feature to be desired.

8 Q. If we were to turn to the next slide, RPX-665,
9 what did Nippon teach in 1987 about protrusions?

10 A. Nippon is one of many articles that conveys the
11 idea that, if the detector protrudes slightly into tissue,
12 not only can you get more repeatable coupling, but you can
13 increase the sensitivity of the sensor in this case, meaning
14 that the signal strength of the detected signal itself is
15 improved, consistent with what we've all seen in our own
16 laboratories.

17 Q. If we were to turn to the next slide, Seiko and
18 Cramer, what did they teach even farther back in the 1970s
19 about convex protrusions?

20 A. So I believe the date on Seiko might be
21 mislabeled here. It should say 1996, I recall.

22 But Seiko 131 taught the notion that the convex
23 surface, light transmittance plate, could be used to
24 increase the quality of the signal, not only via positive
25 contact with a body surface, but Seiko includes a long

1 section on the removal of residual blood out of the way as a
2 result of added pressure so that the pulsatile signal would
3 be more available to the field of view of the sensor.

4 Q. Okay.

5 A. Cramer, likewise --

6 Q. Go ahead.

7 A. Well, Cramer, likewise, taught the idea where the
8 Cramer specification states that pressure needs to be
9 applied in order to push the boss region into tissue to make
10 an effective measurement, and that the boss arrangement with
11 its convex curvatures is effective to minimize the
12 discomfort to the wearer.

13 Q. And have you, finally, have you seen any evidence
14 either over the course of this case or at this trial that
15 Apple copied the alleged inventions in the Poeze patents?

16 A. I have not.

17 Q. Let's turn, then, briefly to the written
18 descriptions in the Poeze patents. We're going to put on
19 the screen RDX-8131.

20 Have you also considered whether the Poeze
21 specification supports and enables the asserted Poeze
22 claims?

23 A. Yes, I have considered that.

24 Q. And just briefly, have you identified any
25 embodiments in the Poeze patents that include the claimed

1 limitations of features recited in '501, claim 12, '502
2 claim 22, '502 claim 28, and '648, claim 12?

3 A. No. As an example, the combination of three
4 LEDs, three photodiodes, and a plurality of openings over
5 the photodiodes with opaque lateral surfaces as in claim 12,
6 I can't find a single embodiment. The same is true of these
7 other descriptions that are on the same viewgraph.

8 Q. Okay. We're going to go to RDX-8.133.

9 Have you identified any -- any discussion or any
10 embodiments in the Poeze specification that include four
11 emitters each with three LEDs?

12 A. No.

13 Q. If we could turn to the next slide.

14 Have you identified any discussion in the Poeze
15 specification of the use of multiple sets of LEDs each with
16 LEDs emitting at a first wavelength and a second wavelength?

17 A. I have not found one, no.

18 Q. If we could turn to the next slide.

19 Have you identified anything in the Poeze
20 specification that would tell a person of skill in the art
21 how to implement a user interface with a touchscreen?

22 A. I have only found two brief references to
23 touchscreens, so no.

24 Q. Finally, on the next slide, have you seen
25 anything in the Poeze specification that provides guidance

1 on reducing or avoiding light piping other than a general
2 reference to the use of opaque materials?

3 A. No. I've just seen a vague correlation between
4 the two, that's it.

5 Q. Let's turn, then, to the issue of the basis for
6 your opinion that the Apple products do not infringe.

7 And you were here for the testimony of Apple's
8 engineers, correct?

9 A. That's correct.

10 Q. And have you also compared Apple's accused
11 products to the asserted Poeze claims?

12 A. Yes.

13 Q. And what did you conclude?

14 A. I have concluded that they do not infringe those
15 claims.

16 MS. VREELAND: Your Honor, we would like to go on
17 the Apple confidential record with Apple CBI.

18 (Whereupon, the hearing proceeded in confidential
19 session.)

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1 O P E N S E S S I O N

2

3 JUDGE BHATTACHARYYA: Let's move back to the
4 public record.

5 BY MR. CLAASSEN:

6 Q. Are --

7 A. That's not completely correct, no.

8 Q. Hold on.

9 Are we okay to proceed, Your Honor?

10 JUDGE BHATTACHARYYA: Yes, you can proceed.

11 Q. Dr. Warren, you should have a series of three
12 binders available to you for cross-examination. You can go
13 ahead and open those now.

14 Dr. Warren, I want to make sure that you have the
15 right set of binders in front of you. Could you open up the
16 first binder? We'll verify that it's the right binder.

17 So the first binder has a label on its spine
18 that's binder 1 of 3. Do you see that?

19 A. Yes.

20 Q. And there's an index, a table of contents. Do
21 you see that?

22 A. I do, yes.

23 Q. Okay. Thank you. All right. So we'll now move
24 on to the questions.

25 I had asked you before I asked you to open the

1 binders that you testified earlier today that this was your
2 first time testifying in court; is that right?

3 A. This is the first time I've testified at trial.

4 Q. At trial; is that correct?

5 A. Yes. I've testified in earlier depositions.

6 Q. So you did not mean to suggest to Her Honor that
7 you have not been retained as an expert in litigation
8 before, right?

9 A. Oh, no, certainly not. That was not my
10 suggestion.

11 Q. And you have been retained on behalf of Phillips
12 in a case against Masimo; is that right?

13 A. That's correct.

14 Q. And that case was -- your involvement in that
15 case was from approximately August 2013 to November 2016; is
16 that right?

17 A. That sounds correct.

18 Q. Dr. Warren, you talked earlier about a sensor
19 head called a Kansas State 6D. Do you remember that?

20 A. Yes.

21 Q. You dug that Kansas State 6D head out of storage
22 at the request of counsel in this case. Would you agree
23 with that?

24 A. I would agree that I removed it from storage.

25 Q. You removed it out of storage at the request of

1 counsel, right?

2 A. Yes.

3 Q. Just to be clear, you are withdrawing any opinion
4 that the Kansas State 6D invalidates any asserted claims; is
5 that correct?

6 A. I never had the opinion that Kansas State 6D
7 invalidates any asserted claims on its own. It was always
8 an obviousness argument.

9 Q. So just to be clear, then, you are withdrawing
10 any opinion that the Kansas State 6D in the combinations
11 invalidates any asserted claims; is that correct?

12 A. Well, I don't know that I can say that I'm
13 withdrawing an opinion because I don't know the legal
14 ramifications of that, but I had planned to offer those
15 opinions today, but I reduced my set of slides in order to
16 save Her Honor some time.

17 Q. And you did not compare any Kansas State 6D
18 references, documents to the claims asserted in this case;
19 is that correct?

20 A. That's incorrect.

21 Q. Today.

22 A. Today I don't recall that I did.

23 Q. When you say you don't recall that you did, you
24 did not compare any of the claims asserted in this case to
25 the Kansas State 6D documents or sensor head, right?

1 A. I did not formally present those in a slide, but
2 I don't recall if I mentioned anything in passing that you
3 would consider to meet that requirement.

4 Q. And you didn't offer an opinion on obviousness
5 with respect to the Kansas State 6D and, for example, the
6 Seiko 131 and Haar references; is that correct?

7 A. The intention of my opinions today was to note
8 that those techniques are old and that it would be obvious
9 for a person of ordinary skill to implement them.

10 Q. And I'd like to make clear for the record that
11 counsel is withdrawing the opinions from you, Dr. Warren, on
12 Kansas State regarding obviousness of claims 12 of the '501,
13 12, 24, and 30 of the '648, claim 22 of the '502, and claim
14 28 of the '502. Is that correct?

15 A. I don't know how to respond to that because that
16 sounds like a legal matter.

17 Q. But you didn't present any analysis on a
18 claim-by-claim basis with respect to Kansas State
19 right?

20 A. That's correct.

21 Q. Let's talk a little bit about the Lumidigm
22 reference. Do you have that in mind?

23 A. I do.

24 Q. Fig. 2 of Lumidigm depicts an example where the
25 sensor head is flat, right?

1 A. To my memory, yes.

2 Q. Do you remember what Fig. 2 looks like without
3 having it in front of you?

4 A. I do.

5 Q. Okay. Let's pull up RDX-8.26.

6 This is one of the slides you presented this
7 morning, isn't it, Dr. Warren?

8 A. Yes.

9 Q. You shaded the LEDs in red; is that correct?

10 A. That is correct.

11 Q. And this is the sensor head that is flat, right?

12 A. Yes, it is the sensor head and not depicted with
13 a curvature, simply drawn.

14 Q. When you say "simply drawn," you mean that you
15 annotated on this figure; is that correct?

16 A. No. What I mean by simply drawn is that Fig. 2
17 was drawn with simple constructs, straight lines and boxes
18 and arcs.

19 Q. But it is, in fact, straight, isn't it?

20 A. In this depiction the top of the sensor head is
21 indeed straight.

22 Q. When you say "the top of the sensor head," what
23 are you referring to, Dr. Warren?

24 A. The part of the sensor head that meets the tissue
25 is what I'm referring to.

1 Q. Is there a reference designator associated with
2 what you're talking about, and do you know what I mean by
3 "reference designator"?

4 A. I don't know what you mean by reference
5 designator, but the way the cross-section is drawn in the
6 figure, if I consider down to be the bottom of the figure
7 and up to be the top of the figure, then the top of the
8 sensor head would be where the sensor head meets tissue.

9 Q. Is there a number 39 associated with that line?

10 A. 39 looks like the closest label to the line of
11 which I speak.

12 Q. Dr. Madisetti, you offered an opinion that a
13 person of ordinary skill in the art would know that a
14 protrusion can help improve signal quality of light-based
15 signals received by optical biosensing devices; is that
16 correct?

17 A. You called me Dr. Madisetti.

18 Q. Oh, I apologize.

19 A. No, that's all right.

20 Q. Running on very little sleep, Dr. Warren. I
21 apologize. I really -- I do apologize.

22 A. I get it. No worries. That's okay.

23 Q. So, Dr. Warren, you offered the opinion that a
24 person of ordinary skill in 2008 would know that a
25 protrusion can help improve signal quality of light-based

1 signals received by optical biosensing devices, right?

2 A. Yes.

3 Q. And, Dr. Warren, you analyzed the Mendelson '799
4 patent, right?

5 A. I did look at that patent, yes.

6 Q. You included that in your demonstratives today;
7 is that correct?

8 A. The Mendelson '799? I don't recall how it was
9 labeled -- as a document or an exhibit.

10 Q. Okay. Let's take a look at your demonstrative
11 RDX-8.127.

12 A. Oh, I see. I thought you meant the state of the
13 art section.

14 Q. This is the Mendelson '799 reference, right?

15 A. Yes.

16 Q. And you highlighted a little bit of the text here
17 in Mendelson '799, right?

18 A. I did.

19 Q. But Mendelson '799 actually states that
20 variations in contact pressure between the sensor and the
21 skin can cause larger errors in reflection pulse oximetry
22 (as compared to the transmission pulse oximetry) -- as
23 compared to transmission pulse oximetry -- since some of the
24 blood near the superficial layers of the skin may be
25 normally displaced away from the sensor housing towards

1 deeper subcutaneous structures, right?

2 A. I see those words, yes.

3 Q. And you didn't highlight those words, did you.

4 A. No, I did not.

5 Q. But they are on this slide, aren't they?

6 A. They are on the slide, but the context as
7 displayed in Fig. 4 is that you see the skin layer a little
8 bit of tissue --

9 Q. Dr. Warren, you've answered my question. They're
10 on the slide, right?

11 A. Those words are on the slide, yes.

12 Q. That's all I asked you.

13 MR. CLAASSEN: I'd like to go on the Apple
14 confidential record for a moment.

15 (Whereupon, the hearing proceeded in confidential
16 session.)

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3 BY MR. CLAASSEN:

4 Q. Dr. Warren, you would agree that the Seiko
5 reference, in the Seiko reference, the cover glass closes
6 the through hole, right?

7 A. I would have to look at the document to see what
8 the language is, whether it says a through hole or an
9 opening, but I believe it says through hole, and, yes, the
10 cover glass closes the through hole.

11 Q. So the cover glass closes the through hole in
12 Seiko 131, right?

13 A. Such that the through hole no longer is -- no --

14 Q. Yes or no, Dr. Warren? Yes or no?

15 A. The cover glass closes --

16 Q. Dr. Warren, I would like you to stop.

17 Let's turn to your deposition, page 113. It's in
18 your binder. That's exhibit, tab 1, Exhibit CX-300, and I'd
19 like you to turn to page 113.

20 A. Which binder are we in?

21 Q. Binder 1, tab 1, and I'd like you to turn to page
22 113.

23 A. Okay. I'm with you.

24 Q. Take a look at line 4, lines 4-6. You were asked
25 the following question:

1 MS. VREELAND: Your Honor, if I may just
2 interject. I'm going to object to this because I think
3 there are multiple Seiko references in this case, and I
4 don't think that there's impeachment until we've established
5 that it is the same Seiko that he testified about.

6 MR. CLAASSEN: I'll ask you generally the same
7 way the question was asked here.

8 Q. The cover glass 23 discloses through hole 22 in
9 Seiko, correct?

10 JUDGE BHATTACHARYYA: There's been an objection
11 posed. Can you respond to it, Mr. Claassen?

12 MR. CLAASSEN: Yes, Your Honor. I could lay a
13 foundation or we could just move on.

14 JUDGE BHATTACHARYYA: It's up to you, either one.

15 MR. CLAASSEN: Okay.

16 Q. Let's go back to your slides, this morning,
17 Dr. Warren, and let's pull up the Seiko 131 reference.

18 A. To be clear, these are different Seikos.

19 Q. Is it your opinion, then, is it your opinion that
20 the cover glass in Seiko 131 does not close the through
21 hole?

22 A. My opinion is that the cover glass in Seiko 131
23 does close the through hole in terms of the opening at the
24 protrusion, but it's not consistent with my deposition
25 question.

1 Q. I understand. I want to make sure that I
2 understand your opinions regarding whether the glass in
3 Seiko 131 closes the through hole.

4 A. Yes, such that it no longer extends through the
5 protrusion.

6 Q. Thank you, Dr. Warren.

7 Dr. Warren, I'd like to talk about --

8 We'll need to go on the Masimo confidential
9 record for a little bit.

10 (Whereupon, the hearing proceeded in confidential
11 session.)

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3 JUDGE BHATTACHARYYA: Moving back to the public
4 record.

5 MR. CLAASSEN: Actually I have -- we can stay on
6 the Masimo --

7 Q. Dr. Warren, you did no clinical accuracy study on
8 the --

9 JUDGE BHATTACHARYYA: Wait.

10 MR. CLAASSEN: I can stay public. This is fine.

11 JUDGE BHATTACHARYYA: Okay.

12 Q. Dr. Warren, you did no clinical accuracy study on
13 the CPX-146, right?

14 A. No, and I did not conduct an RMS calculation as
15 required, which would have been more significant --

16 Q. You've answered my question, Dr. Warren.

17 A. I just did.

18 Q. Dr. Warren, you've answered my question.
19 You did no RMS calculation, correct?

20 A. That's correct.

21 Q. Dr. Warren, you testified earlier today that you
22 did not find any mention of the wrist as a measurement site
23 in the '501 patent, right?

24 A. That's correct.

25 Q. But you were being very, very specific about the

1 word "wrist" in that testimony, correct?

2 A. That is correct.

3 Q. You do know, however, that the '501 patent
4 actually expressly states that, quote, in some embodiments
5 the measurement site 102 is located somewhere along a
6 nondominant arm or a nondominant hand, e.g., a right-handed
7 person's left arm or a left hand, right?

8 A. Yes.

9 Q. Dr. Warren, you offered opinions based on the
10 combination of Lumidigm and a patent you called Seiko '131
11 that we were just about just a few minutes ago, right?

12 A. Yes.

13 Q. And you prepared some demonstrative slides
14 regarding your analysis of Seiko '131, right?

15 A. That's correct.

16 Q. Let's pull up RDX-8.75.

17 Dr. Warren, this was your analysis that you
18 presented this morning regarding the chamfered edge, right?

19 A. This is part of it, yes.

20 Q. And you see you wrote the limitation at the top
21 of the screen, right?

22 A. That's correct.

23 Q. And in this limitation that's on your slide, the
24 protrusion further comprises one or more chamfered edges,
25 right?

1 A. That's what the wording says, yes.

2 Q. That's what the claim limitation requires, right?

3 A. That's correct.

4 Q. I'd like to draw your attention to the bottom
5 left portion of your demonstrative. Do you see that?

6 A. I do.

7 Q. You highlighted the protrusion in yellow, right?

8 A. That's correct, part of it.

9 Q. When you say "part of it," is that part of it or
10 is that all of it?

11 A. The whole front of the device protrudes in the
12 tissue, but the light transmittance plate is the convex
13 surface that comprises part of the protrusion.

14 Q. So you understand that 341A that you've
15 highlighted in yellow is the protrusion, right?

16 A. The light transmittance plate is the convex
17 portion of the protrusion in Seiko '131.

18 Q. And you also annotated blue lines on Fig. 28,
19 right?

20 A. That's correct.

21 Q. You labeled those blue lines as a chamfered edge,
22 right?

23 A. Yes.

24 Q. And those blue lines are not on the protrusion
25 that you highlighted in yellow, right?

1 A. That's correct. I stated earlier they were for
2 comfort.

3 Q. You've answered my question.

4 Dr. Warren, you also testified about that Kansas
5 State 6D head. Do you remember that?

6 A. I do.

7 Q. And you testified that the 6D head was made of a
8 pliable foam, right?

9 A. That's correct.

10 Q. And the pliable material on the 6D head allows
11 the sensor to conform to the measurement site, right?

12 A. Yes.

13 Q. The Kansas State 6D sensor head was not designed
14 with a convex surface, right?

15 A. That's correct.

16 Q. And the details of the Kansas State 6D system are
17 corroborated by RX-508; is that correct?

18 A. I don't recall the number of the exhibit.

19 Q. Okay. Let's take a look at your RDX-8.91.

20 A. Can you lead me to a tab or a binder?

21 Q. It's on the screen. This is the demonstrative
22 that you presented on the screen earlier. Do you remember
23 that?

24 A. Yes.

25 Q. And the title of this slide is the K-State System

1 Corroboration, and it's RX-508, right?

2 A. Yes.

3 Q. So the details of the Kansas State 6D system are
4 set forth in RX-508, right?

5 A. Some of the details, yes.

6 Q. Dr. Warren, you presented no opinion this morning
7 regarding the secondary consideration of failure of others,
8 right?

9 MS. VREELAND: Objection to the form of the
10 question.

11 A. I provided secondary considerations, but I --

12 JUDGE BHATTACHARYYA: Let's resolve the
13 objection.

14 What's the problem with the form of the question?

15 MS. VREELAND: I'm sorry. I thought that -- I
16 thought that he -- well, I'll withdraw the objection. I'll
17 withdraw the objection.

18 Q. You can answer my question, Dr. Warren.

19 A. I provided opinions on secondary considerations.
20 I don't recall that I was focusing specifically on failure
21 of others.

22 MR. CLAASSEN: No further questions.

23 JUDGE BHATTACHARYYA: Any redirect?

24 MS. VREELAND: No redirect, Your Honor.

25 JUDGE BHATTACHARYYA: All right. Thank you very

1 much for your time, Dr. Warren.

2 THE WITNESS: Thank you. I appreciate it.

3 MS. FRAZIER: With Your Honor's permission,
4 Dr. Warren, you may leave.

5 Your Honor, Apple's next witness will be Vince
6 Thomas, and he will be presented by my colleague Derek
7 Gosma.

8 MR. GOSMA: Good morning, Your Honor.

9 JUDGE BHATTACHARYYA: Good morning.

10 MR. LAQUER: Good morning, Your Honor.

11 JUDGE BHATTACHARYYA: Good morning. Good
12 morning, Mr. Thomas. Do you understand that you are under
13 an obligation to tell the truth here today?

14 THE WITNESS: I do.

15 VINCENT THOMAS,
16 having been first duly sworn and/or affirmed
17 on his oath, was thereafter examined and testified as
18 follows:

19 DIRECT EXAMINATION

20 BY MR. GOSMA:

21 Q. Could you please introduce yourself?

22 A. Sure. My name, full name, is Vincent Alexander
23 Thomas. I'm a senior managing director with FTI Consulting.

24 Q. What's your educational background?

25 A. I have a Bachelor of Arts in economics from

1 DePauw University and I have a Master's in business
2 administration from Indiana University.

3 Q. Do you have any professional credentials?

4 A. Yes. I'm a certified public accountant,
5 certified valuation analyst, certified licensing
6 professional, accredited in business evaluations, and a
7 certified patent valuation analyst.

8 Q. Have you performed an analysis of domestic
9 industry in other investigations?

10 A. Yes, in approximately 20 investigations.

11 MR. GOSMA: Your Honor, we move to admit
12 Mr. Thomas as an expert in the field of economics and
13 financial analysis.

14 JUDGE BHATTACHARYYA: Any objection?

15 MR. LAQUER: No objections.

16 JUDGE BHATTACHARYYA: Mr. Thomas is admitted as
17 an expert in the field of economics and financial analysis.
18 BY MR. GOSMA:

19 Q. Mr. Thomas, have you prepared any demonstratives
20 to assist with your testimony today?

21 A. I have.

22 Q. Let's call those up now. And for the record
23 these are RDX-9. Let's call up RDX-9.2.

24 Can you summarize your opinions on the issues of
25 domestic industry and bonding?

1 A. Sure. First, my first opinion is that the
2 Complainants through Mr. McGavock have not satisfied the
3 economic prong of domestic industry, either under sub-prong
4 A or sub-prong B. I also -- it's also my opinion that they
5 have not shown that a bond is necessary let alone 100
6 percent bond.

7 Q. Thank you.

8 MR. GOSMA: Your Honor, at this time we need to
9 move onto the Masimo confidential record.

10 (Whereupon, the hearing proceeded in confidential
11 session.)

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3 MR. LAQUER: May I proceed, Your Honor?

4 JUDGE BHATTACHARYYA: Yes, you may.

5 BY MR. LAQUER:

6 Q. Mr. Thomas, you've criticized Mr. McGavock for
7 supposedly having not performed any independent verification
8 of Masimo's domestic industry claim, correct?

9 A. Correct.

10 Q. And in your direct testimony, when criticizing
11 activities at Masimo's facilities, you said that you've been
12 to other manufacturers' facilities, correct?

13 A. Correct.

14 Q. And in preparing your rebuttal report, you
15 reviewed Mr. McGavock's statement in his report that he
16 visited multiple Masimo facilities in Irvine, California,
17 correct?

18 A. I can't say verbatim, but he said something to
19 that effect, yes.

20 Q. But you did not request to visit Masimo's
21 facilities, correct?

22 A. I did not.

23 Q. You weren't even aware that Apple had requested
24 that its technical expert conduct a similar inspection of
25 technical materials as Apple's technical expert, correct?

1 A. I don't -- I don't recall if I was -- I don't
2 believe I was.

3 Q. And you reviewed the photographs of
4 Mr. McGavock's tour of the Masimo facilities, correct?

5 A. That's correct.

6 Q. But you are unable to assess whether or not
7 Masimo's manufacturing demonstrated in those photographs is
8 significant, correct?

9 A. No, that doesn't -- those photographs don't tell
10 me anything.

11 Q. Let's look at what you said in your deposition at
12 page 130 beginning on line 14.

13 Question. So are you able to assess whether or
14 not the manufacturing that is demonstrated in those
15 photographs is significant or not?

16 Answer. Well, again, it's pictures that were
17 taken on a one-day trip in February of, I believe February
18 of 2020, and without any context provided for Mr. McGavock.
19 So I don't know that I'm able to assess and respond to the
20 opinions he set forth and the basis for those opinions given
21 the lack of information and context of the photographs, and
22 that's in one particular day.

23 That was your sworn testimony, correct?

24 A. That's correct.

25 Q. And the pictures you were referring to were

1 Mr. McGavock's photos of the tour of Masimo's Irvine
2 facilities, correct?

3 A. I believe so, yes.

4 Q. So you were asked to opine whether Masimo had
5 satisfied the domestic industry requirement, but you didn't
6 bother going to Masimo's domestic facilities, correct?

7 A. That's absolutely correct.

8 MR. LAQUER: No further questions.

9 MR. GOSMA: No redirect, Your Honor.

10 JUDGE BHATTACHARYYA: Thank you.

11 Thank you, Mr. Thomas. You can step down now.

12 THE WITNESS: Okay. Thank you.

13 JUDGE BHATTACHARYYA: Are we on the public record
14 now?

15 MS. SWAROOP: I believe we are, Your Honor.

16 JUDGE BHATTACHARYYA: Okay.

17 MS. SWAROOP: I think we can go on the public
18 record, if we weren't before.

19 JUDGE BHATTACHARYYA: Let's go back to the
20 public.

21 MR. MUELLER: Thank you, Your Honor. Thank you,
22 again, for the accommodation this morning. I appreciate it.

23 JUDGE BHATTACHARYYA: Of course.

24 MR. MUELLER: A couple housekeeping matters.
25 First, Apple has a list of deposition designations and

1 associated exhibits that were submitted to your chambers
2 before the lunch break that we would like to move in. Our
3 understanding is all objections have been resolved. Unless
4 Ms. Swaroop --

5 MS. SWAROOP: I'm just checking with my team.

6 Mr. Mueller, you are correct, we do not have any
7 outstanding objections with the clarifications we discussed
8 this morning, so that's correct.

9 JUDGE BHATTACHARYYA: Okay. I have a list before
10 me, "Respondent Apple Inc.'s Submission of Deposition
11 Designations and Exhibits."

12 I understand, Ms. Swaroop, you have no objection
13 to this particular list that I have now; is that correct?

14 MS. SWAROOP: That's correct, Your Honor.

15 JUDGE BHATTACHARYYA: Then that list of exhibits,
16 the deposition designations and associated exhibits is
17 admitted. Please send a copy to the court reporter.

18 (Whereupon, the exhibits as recited by counsel
19 and reflected in the attached index were submitted and
20 received in evidence.)

21 MR. MUELLER: Second, Your Honor, Apple submitted
22 to your chambers this morning a list of exhibits from the
23 evidentiary hearing yesterday, June 9th, that the parties
24 have agreed is ready to be moved in as well, Your Honor.
25 And it was submitted at 9:31 a.m. this morning.

1 JUDGE BHATTACHARYYA: I have a list entitled
2 "Table of Admitted Exhibits for the Evidentiary Hearing on
3 June 9th, 2022."

4 Are there any objections to that -- admission of
5 those exhibits, Ms. Swaroop?

6 MS. SWAROOP: Your Honor, we do have the
7 outstanding CX-322bC issue, so we both agree that the
8 exhibits can come in, it's just a question of which version,
9 and I think that's been submitted to Your Honor. So that's
10 the current status.

11 JUDGE BHATTACHARYYA: Okay. I reviewed that
12 exhibit and the various alternative redactions to it. I
13 understand that the parties are fine with me deciding which
14 one I think is more appropriate and moving that in.

15 If that's the understanding, then the Masimo
16 version I believe is more appropriate, the Apple version
17 still has material in it that goes beyond test protocols and
18 test data, so Masimo's version will be the one admitted.

19 (Whereupon, the exhibits as recited by counsel
20 and reflected in the attached index were submitted and
21 received in evidence.)

22 JUDGE BHATTACHARYYA: With that clarification,
23 the exhibits listed on the Table of Admitted Exhibits for
24 the Evidentiary Hearing on June 9th, 2022 is admitted.
25 Please send a copy to the court reporter.

1 MR. MUELLER: Your Honor, we'll go over the
2 transcript from this morning, and if there's any additional
3 exhibit that have not been submitted as of the list for
4 yesterday, we'll submit those to Your Honor as well.

5 But, with that, Apple rests.

6 JUDGE BHATTACHARYYA: Very well.

7 MS. SWAROOP: Your Honor, Masimo is ready to
8 begin its rebuttal case, and we understand this will be the
9 third and final phase of the evidentiary hearing.

10 At this point in time we have four remaining
11 expert witnesses that we intend to present. And I did want
12 the court to know as well that we do have Mr. Kiani listed
13 as a rebuttal witness as well. He is our only remaining
14 fact witness.

15 And at this point in time, unless testimony
16 elicited by Apple during cross of our remaining experts
17 requires additional factual testimony from Mr. Kiani to
18 rebut, we do not currently plan to call Mr. Kiani as a
19 rebuttal witness.

20 JUDGE BHATTACHARYYA: Thank you for the
21 clarification.

22 MS. SWAROOP: And with that, Your Honor, we are
23 ready to begin with Dr. Madisetti. And my colleague,
24 Mr. Claassen, will be conducting that examination.

25 MR. MUELLER: And Ms. Frazier will do the cross.

1 JUDGE BHATTACHARYYA: Hello again, Dr. Madiseti.

2 THE WITNESS: Good afternoon, Your Honor.

3 JUDGE BHATTACHARYYA: Just to be on the safe side
4 I will ask you to swear or affirm again.

5 VIJAY MADISETTI,

6 having been first duly sworn and/or affirmed
7 on his oath, was thereafter examined and testified further
8 as follows:

9 DIRECT EXAMINATION

10 BY MR. CLAUSSEN:

11 Q. Good afternoon, Dr. Madiseti.

12 A. Good afternoon, sir.

13 Q. Did you prepare demonstrative slides regarding
14 your validity analysis for this case?

15 A. Yes.

16 Q. Let's take a look at CDX-12C, please. We can
17 turn to slide 2.

18 Dr. Madiseti, can you please explain the summary
19 of your opinions regarding validity?

20 A. Yes. I'm offering an opinion with respect to the
21 asserted claims of the '501, the '502, the '648, and the
22 '745. It is my opinion that Apple has failed to show that
23 any asserted claim is anticipated or rendered obvious. They
24 originally had nine grounds challenging '501, '502, and '648
25 patents and three grounds challenging '745 patent. My

1 opinions apply to all these grounds.

2 The specification in my opinion adequately
3 supports the asserted claims under Section 112, and
4 objective evidence confirms nonobviousness of the asserted
5 claims under the asserted grounds.

6 Q. Let's turn to the next slide, slide 3.

7 What materials did you analyze in forming your
8 opinions on validity?

9 A. I reviewed the patents, the file histories. I
10 also reviewed the product references. I applied the
11 knowledge of a POSITA. I looked at the expert reports. I
12 responded to them. I reviewed the deposition testimonies,
13 where relevant, the documentary evidence that I had at my
14 possession and the physicals and did some testing again.

15 Q. You mentioned something called a POSITA. What is
16 the level of skill in the art that you applied?

17 A. Yes. As I describe in the next slide, for these
18 '501, '502, and '648, and '745 patents in the relevant time
19 frame, that's 2008 and 2015, it was a person with working
20 knowledge of physiological monitoring technologies, having a
21 BS degree in the academic disciplines that I list here,
22 electrical, computer, or software; some amount of training;
23 and one to two years of related work experience in these
24 areas. Alternatively, a person could have a higher degree,
25 such as an MS degree, with less than a year of work

1 experience. I also -- my opinions also apply under Apple's
2 experts level of skill in the art.

3 Q. Turning to slide 7, what is shown on this slide?

4 A. Yes. These are the nine grounds that Apple had
5 originally applied. For the Multi-Detector Patents, which
6 are the '501, '502, and the '648, and now I think based on
7 today's presentation by Dr. Warren, only six of these
8 grounds remain, 1 through 6, which are based on Lumidigm.

9 As you can see, as I tried to show from this
10 particular chart, that out of the nine grounds almost all
11 the references that I've highlighted in yellow have been
12 presented to the USPTO. And the only references that appear
13 to remain are Lumidigm and Apple 047 and a Bluetooth board.

14 Q. Turning to slide 9, please explain your analysis
15 regarding Lumidigm.

16 A. Yes. With respect to Lumidigm, Lumidigm has
17 several problems, and I list them here, and then I will
18 explain a little more.

19 Lumidigm does not disclose or suggest at least
20 the following claim features and elements:

21 There is no protrusion comprising a convex
22 surface. This directly applies to claim elements '501, 1C,
23 claim 12, '502, 19C, and 28E, '648, 8D and 20C.

24 It has no protrusion at all or over an interior
25 surface. This applies to '501, 1C, '502, 28E. It has no

1 photodiodes disclosed '501, 1B, '502, 19B, 28C, 6488C, and
2 20B. It has no openings or through holes in protrusion or
3 windows in opening. And this applies to claim elements 1D
4 of the '501, 19C and 19D of the '502, 28F and 28G of the
5 '502, and 8E, 20D, and 20E of the '648.

6 It has no disclosure of SpO2 calculations or
7 measurements. This affects the '502, 19 preamble, 28
8 preamble, and the '648, claim 12. It has no claimed
9 cavities, '502, 28H; no opaque lateral surface or opaque
10 material configured to avoid or reduce light piping, element
11 1E of the '501, element 28F of the '502, element 24 -- claim
12 24 of the '648.

13 It has no thermistor, no adjustment responsive to
14 temperature, claim 20 of the '502, claim 21 of the '502,
15 claimed 28D and 28I of the '502.

16 And the only passing references to hemoglobin or
17 oxygen levels as something called extended functionality.
18 And I refer here, for example, to Fig. 2 that the Apple
19 seems to include as a part of their analysis.

20 Q. Turning to the next slide, please explain your
21 analysis regarding the extended functionality of Lumidigm.

22 A. Yes. As I said, Apple relies on a passing
23 mention of hemoglobin in Lumidigm. Lumidigm is just a
24 biometric identifier device. Looking at RX-411 in columns
25 3, 35-37, 4, 7-29, 10, 11-21, and 19, 16-28, none of these

1 very vague mentions of hemoglobin link it to Fig. 8
2 embodiment that's shown on the right.

3 There's no mention of oxygenation and/or
4 hemoglobin levels, other than a broad discussion of what I
5 call as aspirational extended functionality. So, again,
6 there's no link to Fig. 8B. There's no disclosure or
7 suggestion of Lumidigm being configured to noninvasively --
8 noninvasively measure oxygen or oxygen saturation.

9 So those are some of the comments I make with
10 respect to how Lumidigm does not disclose this
11 functionality.

12 Q. Turning to the next slide, please explain your
13 analysis regarding the lack of a protrusion comprising a
14 convex surface in Lumidigm.

15 A. Yes. Lumidigm sensors have a flat sensor
16 surface, 39, as shown here on Fig. 2.

17 And Lumidigm says the sensor head 32 may have
18 some compound curvature of the optical surface, which is
19 Lumidigm at column 7, 58-63.

20 But if you look at that disclosure on the bottom
21 right, that is described that the sensor head may have --
22 also have a compound curvature on the optical surface to
23 match the profile of a device on which it's mounted.

24 So if it were a wristwatch and it were mounted on
25 the hand, it would have a concave curvature at best. So

1 this is what Dr. Rowe, who is an inventor, confirms that I
2 describe on bullet 3, that Rowe admits that a concave
3 compound curvature would better approximate users tissue,
4 his deposition testimony CX-279C at 68-69.

5 So even this passing mention, if applied to
6 Fig. 8B would run contrary to Apple's incorrect argument
7 that somehow compound curvature could be convex, which I
8 disagree with.

9 Second is that Apple's argument is, again, trying
10 to conflate this 39 with some sort of protrusion. It is
11 unclear whether it is conflating this optical surface as
12 having some sort of protrusion. There's no distinction
13 between a protrusion or an interior surface. There's no
14 disclosure of any sort of cavities or any opaque wall that's
15 formed.

16 All that is disclosed is some sort of movement of
17 this surface 39 up or down. That does not make a
18 protrusion. That does not make an interior surface that's
19 distinct from a protrusion. It does not satisfy all these
20 other features. Therefore, Lumidigm fails to disclose or
21 suggest to a POSITA a protrusion comprising a convex surface
22 arranged over or above the interior surface or photodiodes.

23 And Dr. Warren admitted that this figure is a
24 flat sensor surface.

25 Q. Dr. Madisetti, you heard Dr. Warren testify about

1 something called Kansas State 6D, right?

2 A. Yes.

3 Q. Turning to slide 15, can you please briefly
4 explain Kansas State 6D?

5 A. Yes. Kansas State 6D was mentioned in passing.
6 It is an undergraduate project from more than 20 years ago.
7 It's a very -- it's not a user-worn device. It has many
8 problems. It has a foam type of description that is shown
9 here in the middle. And there's no evidence that it was
10 ever -- it ever resulted as a user-worn device. So it looks
11 like a very simple, basic undergraduate class project.

12 Q. Dr. Madisetti, is your understanding that Kansas
13 State 6D is from approximately 2004 or 2005?

14 A. Yes, it's more than 17 years, that's my
15 understanding.

16 Q. Turning to slide 23, please explain your analysis
17 of Apple's third reference, Cramer?

18 A. Yes.

19 Q. Excuse me. Seiko 131.

20 A. Yes. Seiko 131 is a second reference suggested
21 by Apple. And there's, again, no protrusion comprising a
22 convex surface with openings. And this applies to elements
23 1D of the '501, 19C, 28F of the '502, 8E and 20D of '648.

24 It just talks about one photo transistor, 32, and
25 so there's no protrusion. There is no opaque lateral

1 surface/material configured to avoid or reduce light piping.
2 This directly applies to 1E of the '501, 28F of the '502,
3 claim 24 of the '648.

4 The alleged protrusion, 341, is just transparent
5 glass. And Exhibit 666, column 10 and lines 30-33 and
6 36-41, there are no windows in the openings or openings in
7 the protrusion. There's no protrusion comprising one or
8 more chamfered edges. This applies to claim 30 of the '648.
9 And the no windows applies to '502, 19D, 28G of the '502,
10 and 8F and 20D of the '648.

11 So I defer to the embodiment that's related with
12 respect to Fig. 28, that I cross out that and say that
13 that's not a protrusion comprising a convex surface with
14 openings.

15 Q. Turning to slide 25, please explain your analysis
16 of Apple's third reference, Cramer.

17 A. Cramer, again, does not disclose or suggest at
18 least the following claim features and elements:

19 So, first of all, there are three embodiments I
20 show on the right, Figs. 2, Fig. 3, and Fig. 5. Fig. 5 is
21 just a pressure sensor. It's not even an optical sensor.
22 So it's not relevant in my opinion to this matter.

23 Further, with respect to Figs. 2 and Fig. 3, the
24 side view of Fig. 3 and then the top view as shown in
25 Fig. 2. As you can see, Your Honor, there are just two

1 rings. These are called bosses. This is not even a
2 protrusion, as claimed.

3 There's no covering over -- there's no protrusion
4 arranged over or above the interior surface or the
5 photodiodes. The photodiodes are shown in red -- sorry --
6 the emitter is shown in red. And in blue you have the
7 detectors.

8 And as you can see, the protrusion, alleged
9 protrusion, is not a protrusion, it's not over these
10 photodiodes, there is -- as claimed.

11 So, secondly, this protrusion, this alleged
12 protrusion, in other words, there's no protrusion comprising
13 a convex surface as well. And Fig. 5 embodiment is just a
14 pressure transducer. And it's not having any photodiodes.

15 The Figs. 2 and 3, the bosses 22 and 22A, are
16 just annular rings. They are not the claimed protrusion
17 with its properties. This directly applies to claim
18 elements 1C of the '501, 19C of the '502, 28D of the '502,
19 28C of the '648, and then also claim elements 1C of the
20 '501, claim 12 of the '501, 19C, 28D of the '502, 8D and 20C
21 of the '648.

22 There are no openings or windows in the openings
23 in the protrusion as claimed. Again, elements 1D of the
24 '501, 19C, 19D, and 29F and 28G of the '502, and 8E, 8F, and
25 20D of the '648.

1 And there's no protrusion comprising the opaque
2 surface materials or the chamfered edges. And this affects
3 1E of the '501, 28F of the '502, claim 24 and 30 of the
4 '648.

5 Q. Turning to slide 27, please explain your analysis
6 of Webster.

7 A. Yes. Webster was, again, cited in the grounds.
8 And first, again, they refer to the exhibit, for example,
9 RX-35. What it is referring to, Your Honor, is that it is a
10 transcutaneous P02 sensor. Transcutaneous is not
11 noninvasive. It is invasive.

12 So there's no thermistor in a user-worn Sp02
13 sensor. Webster describes a transcutaneous Po2 sensor or
14 electrode using a heating element.

15 There's no motivation in Webster to add
16 thermistor to adjust operation of Lumidigm's Fig. 8B
17 biometric system. So this affects claim 20, 21 of the '502,
18 28D and 28I of the '502.

19 Further, there are no windows and
20 openings/through holes of the protrusion as claimed. This
21 affects 19D, 28G of the '502, 8F and 20D of the '648.

22 And there's no motivation in Webster to add
23 windows to Lumidigm's biometric system. There's no
24 explanation of how the specific features of the reference is
25 to be combined and no expectation of success.

1 I will discuss these a little more after I
2 discuss a couple more of these prior art references.

3 Q. Turning to slide 29, please explain your analysis
4 of Apple 047.

5 A. Apple 047 is the reference, I believe, that is in
6 part of Apple's combinations. Again, this is RX-673 shown
7 on the right. It refers to an iPad-type device, and you can
8 see compared to the size of the hand. It's not user-worn
9 physiological measurement device with a touchscreen
10 configured to display oxygen saturation measurements,
11 affecting claim element 28K of the '502.

12 A person of ordinary skill would not look to the
13 iPad-like device of Apple 047 to improve upon Fig. 8B of the
14 biometric system.

15 And then there's no motivation to combine
16 Lumidigm's biometric system with a touchscreen of '047 to
17 display a measurement that Lumidigm does not take. We heard
18 from Dr. Rowe that the SpO2 measurement yesterday was not --
19 was not present.

20 There's no motivation to combine -- or this is
21 not in the grounds anymore, so we can omit the last bullet.

22 Q. Now that we have discussed the shortcomings of
23 the references in Apple's combinations regarding Lumidigm,
24 can we turn to the next slide. Can you explain your
25 analysis -- excuse me, slide 14 -- slide 13 --

1 A. Yes. So we have the grounds with --

2 Q. Let's turn to slide 13, Dr. Madisetti.

3 A. Yes, slide 13. So here after I have -- we have
4 to go to 13?

5 Q. Correct.

6 A. So here after I explain the basic references and
7 what they are missing, I also explain why there's no
8 motivation or reasonable expectation of success for, for
9 example, the protrusion comprising a convex surface.

10 Adding a protrusion comprising a convex surface
11 would add excessive pressure to the measurement site and
12 displace blood away from the sensor, which was known to
13 cause measurement errors.

14 So Mendelson '799, which is Exhibit CX-1733, on
15 pages 2 to 47, which is a reference, a prior art reference,
16 explicitly describes that variations in contact pressure
17 between the sensor and the skin can cause large errors in
18 reflection pulse oximetry (as compared to transmission pulse
19 oximetry), so reflection pulse oximetry is what is done in
20 the wrist, since some of the blood near the superficial
21 layers of the skin may be normally displaced away from the
22 sensor housing towards deeper subcutaneous structures.

23 Consequently, the highly reflective bloodless
24 tissue compartment near the surface of the skin would cause
25 large errors and so on.

1 So this clearly discourages one of ordinary skill
2 in the art and provides no motivation or an expectation of
3 success that the combination would actually work or have a
4 reasonable expectation of success.

5 Further, Rowe confirms that concave, not convex,
6 in the context of Lumidigm, would better approximate tissue
7 shape and provide better coupling with respect to Lumidigm.

8 So, therefore, one of ordinary skill in the art
9 would not understand the motivation or expect success and,
10 thus, would understand that adding a protrusion comprising a
11 convex surface would undesirably also add to the form
12 factor, in addition to causing measurement errors.

13 Q. Dr. Madisetti, you mentioned Mendelson '799.
14 That's CX-1733, right?

15 A. Yes.

16 Q. Turning to slide 30 --

17 A. Sorry. Slide 14.

18 Q. Let's go to slide 14.

19 A. Yes. Further, continuing on, the motivation to
20 combine and no expectation of success, there's no suggestion
21 or motivation to combine Lumidigm's Fig. 8B biometric system
22 with the alleged protrusions of Seiko 131 or Cramer, for the
23 reasons that are explained in Lumidigm alone.

24 In addition, the features of Seiko 131 and Cramer
25 that Apple relies on as a protrusion would be less

1 comfortable and does not align with Lumidigm's goal of
2 incorporating ergonomic features. I rely, again, on RX-411,
3 column 7, 57-63.

4 Further, there's no motivation to combine
5 Lumidigm with an opaque lateral surface or an opaque
6 material configured to avoid, prevent, or reduce light
7 piping.

8 Lumidigm, Seiko 131, and Cramer fail to recognize
9 light piping as a problem at all or motivate a solution to
10 address it. Any discussion in Lumidigm is not a discussion
11 of the light piping problem because it includes the surface
12 of the skin in Lumidigm.

13 There's no explanation of how these specific
14 features of these references would be combined. And, thus,
15 there's no expectation of success as to the combination of
16 Lumidigm and Seiko 131 or Cramer.

17 Q. Now that we've discussed the shortcomings of
18 Apple's combinations, can you explain your analysis on slide
19 30, please?

20 A. Yes. So going to the Lumidigm by itself, ground
21 1, whether it's anticipation or obviousness under Lumidigm,
22 Lumidigm has several problems.

23 It is -- for example, it doesn't have a user-worn
24 device configured to noninvasively measure oxygen saturation
25 as confirmed by Lumidigm and Dr. Rowe. And here is the

1 applicable claim elements that I read earlier.

2 On the right I say this is not present in
3 Lumidigm, and there is no motivation to combine and no
4 expectation of success. And, further, it looks like a
5 hindsight that has driven this sort of combination, where
6 pieces of limitations were added piece by piece using the
7 asserted claims as a roadmap.

8 Then with respect to the user-worn device
9 configured to noninvasively measure a physiological
10 parameter and determine measurements of a user's tissue,
11 again, with respect to the '501 and the '648, the preambles
12 1 and 20, these are not present. And there's no motivation
13 to combine or an expectation of success, and they are driven
14 by hindsight.

15 Similarly, with respect to the emitters and sets
16 of LEDs, each of two or more LEDs, they are not present in
17 Lumidigm. And there's no motivation or expectation of
18 success to modify it. And this affects limitations that
19 I've described here, 19A, 20, 28A, 28B, 8A, and 8B of the
20 '502 and the '648.

21 And then these additional limitations of at least
22 three photodiodes arranged on an interior surface of the
23 user-worn device, those limitations, again, are not present
24 and there is no motivation or expectation of success, other
25 than hindsight.

1 There is no protrusion comprising a convex
2 surface for the reasons that I've described. This is not
3 there. In fact, it teaches away from using a convex
4 surface.

5 And this is, again, a hindsight in my opinion.
6 And there's no expectation of success or a motivation to
7 combine with respect to the limitations that I described
8 earlier.

9 Finally, these openings or through holes through
10 the protrusion, and over or aligned with photodiodes is not
11 present. There's no motivation to modify or combine or
12 expectation of success. This is, again, hindsight. It
13 affects the limitations 1D, 19C, 28F, 8E, and 20D of the
14 Asserted Patents.

15 And, finally, there's no disclosure or
16 obviousness of opaque lateral surface configured to avoid
17 light piping through the protrusion, opaque surface
18 configured to reduce light piping, or other such limitations
19 of 1E, 28F, and 24 of the '501, '502, and the '648. Again,
20 because these are not present, and this is hindsight, and no
21 motivation to modify or expect success, given the teachings
22 of Lumidigm.

23 Q. Turning to slide 31, Dr. Madisetti, please very
24 briefly explain your analysis on this slide.

25 A. Yes. With respect to, I think it continues there

1 with this additional limitations that are missing. The
2 window or optically transparent material in protrusion
3 openings or through holes is not present. There is no
4 motivation to modify. Again, hindsight.

5 Again, it does not calculate SpO2. Again, this
6 is not present. That's why I say no. And there's no
7 motivation to modify or expectation of success. Again,
8 hindsight. There's no one or more processors configured to
9 calculate a physiological measurement, network interface,
10 touchscreen memory are not mentioned. Again, the same
11 reasons, MC/ES hindsight.

12 The thermistor, adjust operation responsive to
13 temperature signal is not present, again, no motivation or
14 hindsight -- based on hindsight, and a protrusion further
15 comprising one or more chamfered edges is not present. And
16 there's no motivation to add it or expectation of success as
17 driven by hindsight.

18 Q. Turning to the next slide, slide 32,
19 Dr. Madisetti please very briefly explain your analysis on
20 this slide.

21 A. Yes. As I described in my analysis for Lumidigm
22 and I described Seiko and Cramer, the limitations that are,
23 again, not present and not -- and there's no motivation to
24 modify or expectation of success and driven by hindsight
25 that it's not a user device, it's not a user-worn device

1 that is configured to noninvasively measure oxygen
2 saturation, it's not a user device configured to
3 noninvasively measure a physiological parameter, there are
4 no emitter sets, each with two or more LEDs, at least three
5 photodiodes arranged is, again, not present, protrusion
6 comprising a convex surface is not present, openings or
7 through holes through the protrusion over or aligned with
8 the photodiodes are not present, and the protrusion, as I
9 said, there's no motivation or expectation of success to
10 combine it with Seiko 131, for the reasons that I mentioned,
11 and there's no opaque electrical surface that affects all
12 these.

13 Q. Turning to the next slide, your analysis
14 continues.

15 A. Yes. With respect to continuing with ground 2,
16 the window or optically transparent material in protrusion
17 openings or through holes again is not present in any of the
18 three in the combination. And there is no motivation or
19 expectation to modify.

20 It is driven, again, by hindsight. And all these
21 other such limitations, such as one or more processors,
22 network interface, on which Apple depends on Lumidigm,
23 again, are not present. And there's no thermistor, and
24 there's no motivation to modify. It's, again, driven by
25 hindsight, no expectation of success.

1 Finally, the chamfered edge is not present in any
2 of the references, nor there is a motivation to modify or
3 expectation of success, it is purely hindsight.

4 Q. Turning to slide 34, please very briefly explain
5 your analysis of this slide.

6 A. Yes. This ground 3 adds Lumidigm with Webster.
7 And as I described earlier, Lumidigm has lots of problems
8 with respect to these limitations shown here. And Webster
9 only is focused on the thermistor, and thermistor was in the
10 case of an invasive sensor, that was subcutaneous or
11 transcutaneous.

12 For that reason, for the reasons that I describe
13 here, none of the limitations of '502 patent, claim 22,
14 which depends on claim 19 are either -- are rendered obvious
15 by ground 3.

16 Q. Turning to slide 35, please very briefly explain
17 your analysis here.

18 A. Yes. With respect to ground 4, the Lumidigm and
19 Seiko 131, Cramer, and Webster, again, fail because for the
20 '502 patent, claim 22, as I describe here, for each of the
21 limitations in claim 19, they are not present in any of the
22 references. There's no motivation to combine, expectation
23 of success. In fact, Lumidigm teaches away against
24 protrusions.

25 And, further, there's no optically transparent

1 material disclosed within any of the openings. And if you
2 continue on the next slide.

3 Q. Slide 36, please.

4 A. Yes; so, again, the limitations 19E, 20, 21 and
5 22 are not met, because they are not present and there is no
6 motivation to modify, expectation of success, it is all
7 hindsight-driven.

8 Q. Turning to slide 37, please very briefly explain
9 your analysis on this slide.

10 A. Yes. Ground 5, the Apple 047, which is the
11 iPad-like interface, again, this, as I described, that is
12 all the features of the '502, claim 28 and are not present
13 for the reasons I described earlier. There's no motivation
14 to combine with Apple, no expectation of success. It is all
15 hindsight-driven.

16 And if you go to the next slide, where they try
17 to combine the Apple 047, it is for the network interface,
18 touchscreen and memory. And as I describe here, there's no
19 motivation or expectation of success, it is
20 hindsight-driven. And all the limitations I list are not
21 present in any of these references, nor rendered obvious.

22 Q. Turning to slide 39, please very briefly explain
23 your analysis on this slide.

24 A. Yes. Slide 39, I rely on my previous analysis
25 for Lumidigm, Seiko 131, Cramer, Webster, and Apple 047,

1 again, for the reasons that I described earlier, claim 28
2 and its limitations are, again, not present, and there's no
3 motivation to modify or expectation of success. And in my
4 opinion they are driven by hindsight for the reasons that I
5 mentioned in the earlier grounds.

6 Q. Turning to slide 40, please very briefly explain
7 your analysis on this slide.

8 A. Continuing on ground 6, as I show here, with the,
9 no, no, no, all these are not present in any of these
10 references, Lumidigm, Seiko 131, Cramer, or Webster. And
11 there's no motivation to combine or expectation of success.
12 For these reasons, it's my opinion that ground 6 does not
13 render obvious the asserted claims.

14 Q. I want to move on now to your analysis of written
15 description support for the Multi-Detector Patents. Do you
16 understand that I'd like to move to that topic?

17 A. Yes.

18 Q. Let's turn to slide 44, please. Please explain
19 your analysis regarding written description support.

20 A. Yes. There is full written description support
21 for multiple LEDs, three or more photodiodes, and opaque
22 lateral surfaces.

23 So, as I described, with respect to Fig. 7B in
24 Exhibit JX-1, there is full support based on Figures 1,
25 Figures 3 to 4, Figures 7A, 7B, columns -- for the

1 limitations based on columns 26, column 27, column 38,
2 column 43, column 44, column 7, and column 6. Multiple LEDs
3 with at least three photodiodes is disclosed because the
4 sensor 301 includes all the features of the earlier sensors
5 100 and 200, column 18, lines 39 to 42.

6 So then the specification clearly discloses the
7 sensors can be 701, can be implemented with any of the
8 sensors 101, 201, and 301 described above, column 26, 25
9 through 29.

10 Fig. 7B and Fig. 49 confirm that sensor 701 has
11 multiple emitters in housing 704 and multiple detectors.
12 And Fig. 14I discloses emitters 1404 are depicted in the
13 emitter shell, numerous embodiments with multiple emitters
14 and detectors, Figs. 1, 7, and 13.

15 The specification also describes in column 7,
16 column 27, column 28 that any protrusion embodiment may
17 include hard or opaque plastic with openings as claimed.
18 The shielding enclosure or box made of copper, opaque
19 material that includes openings as claimed.

20 So in my opinion specification adequately claims
21 configurations with multiple LEDs, three or more
22 photodiodes, and openings with opaque lateral surfaces
23 within the same embodiment.

24 Q. And, Dr. Madisetti, you said adequately claims;
25 is that correct?

1 A. Adequately describes and discloses.

2 Q. So what is your opinion regarding written
3 description on this issue?

4 A. It is my opinion that the claims with multiple
5 LEDs, three or more photodiodes and opaque lateral surfaces
6 have full written description support.

7 Q. Turning to slide 45, please explain your analysis
8 regarding written descriptions support for sets of LEDs in
9 at least four emitters.

10 A. Yes, as I describe again with respect to the
11 embodiment of Fig. 7B, emitters 104 included in the sensors
12 from 101, 201, 301, and 701 and described throughout the
13 specification as described as including sets of LEDs with
14 different wavelengths.

15 I refer, again, to columns 12, lines 3-25, column
16 18, 39-42, and column 26, 25-29, which show that sets of
17 optical sources that are capable of emitting visible and
18 near infrared optical radiation, and then Fig. 13 talks
19 about multistream -- discloses multistream process 1300
20 applicable to any of the sensors described above and using
21 emitter sets.

22 So sensors are described as having -- as many
23 sets of LEDs, as a number of -- as the number of detectors
24 or even more sets of LEDs than the number of detectors,
25 Figs. 13, 33, column 33, 18-51.

1 The specification, JX-1, column 12, 16-25,
2 provides additional disclosure of claimed sets and emitters
3 as I cite here.

4 Q. Turning to the next slide, please explain your
5 analysis of written description and enablement for an opaque
6 material configured to substantially reduce light piping?

7 A. In my opinion written description and enablement
8 are disclosed by the specification itself and supported by
9 the specification itself of the '501, '502, and the '648,
10 where it explicitly describes protrusion can advantageously
11 include hard opaque plastic, helpful in reducing light
12 noise, including by light piping, Exhibit JX-1, column 7,
13 65-8, column 8, line 7.

14 The JX-1 at column 25, 48-59, describes adding --
15 discloses adding height of the protrusion reduces light
16 piping. And I refer to the portion of the specification
17 here that adding height provides for greater thinning of the
18 measurement site and added height assists in deflecting
19 light piped through the sensor.

20 So I, again, refer to column 7, column 25, column
21 37, column 43, and Figs. 3C and 7B in the lines that I cite.

22 Q. Dr. Madisetti, turning back to slide 45, please
23 explain your opinion regarding written description support
24 for the claimed LEDs and emitters.

25 A. Counsel, which slide are you referring to?

1 Q. Slide 45, please.

2 A. Okay. So with respect to the sets of LEDs and at
3 least four emitters, I think I covered this.

4 Q. Can you please briefly explain the basis for your
5 opinion?

6 A. As I said here, the emitters 104 included in
7 sensors 101, 201, 301, and 701, I refer to the
8 specification, column 12, 3-25, column 18, 39-42, column 26,
9 25-29, Figs. 7, 11, and 13 that describe emitters comprising
10 sets of LEDs.

11 I refer to Figure 13, which refers to
12 multi-process 1300 -- multistream process 1300 applicable to
13 any of the sensors described above and using emitter sets,
14 Figs. 13, column 33, lines 18-51.

15 And also the specification in column 12, 16
16 through 25, provides additional further disclosure of the
17 claimed sets and emitters, where it discloses that emitter
18 104 can be arranged in an array, such as described in U.S.
19 Publication Number 2006/0211924, filed September 21, 2006,
20 titled Multiple Wavelength Sensor Emitters, the disclosure
21 of which is incorporated by reference in its entirety.
22 Other --

23 Q. Dr. Madisetti, my question may not have been
24 clear enough. What was your overall final opinion based
25 upon this analysis?

1 A. Oh, I see. I'm sorry for that. It's my opinion
2 that there is full written description support and
3 enablement support for all the claims and their limitations,
4 including those that I described.

5 Q. And turning back to slide 47 where we were, what
6 was your opinion regarding enablement of the touchscreen
7 display and indicia of measurements?

8 A. Yes, as I show in the embodiment of Fig. 2C,
9 there is a disclosure of a touchscreen display that's in the
10 context of the pulse oximeter measurement. And I rely upon
11 specification columns 16, lines 39-42, that talks about --
12 that discloses the features of monitoring devices 200 shown
13 in Figures 2A through 2D that may be combined with features
14 of other monitoring devices 200 shown.

15 And the specification further explains the
16 monitoring device 200 can employ any of a variety of user
17 interface designs, such as touchscreens.

18 And the monitor 209 can include display 210B that
19 can indicate a measurement. Other analytes and other forms
20 of display can also appear on the monitor 209B. And I refer
21 to 209C shown in Fig. 2C, also includes straps 214C that
22 allow the monitor 209C to be attached to the patient's limb
23 or the like. I refer to Figures 2A through 2D, columns 16,
24 17, 18, and 17.

25 Q. Going back to slide 46, Dr. Madisetti, could you

1 please explain the second bullet point in this slide?

2 A. The second bullet point describes the
3 specification, column 25, 48-49, that an added height of the
4 protrusion reduces light piping. So specifically in an
5 embodiment, the added height provides for greater thinning
6 of the measurement site.

7 In an embodiment, the added height assists in
8 deflecting light piped through the sensor. This is because
9 light piped around the sensor passes through the sidewalls
10 of the added height without being directed towards the
11 detectors.

12 Q. Dr. Madisetti, have we now talked about your
13 analysis for the validity of the Multi-Detector Patents?

14 A. Yes.

15 Q. What was your overall conclusion on written
16 description and enablement?

17 A. My overall conclusion is that, for the grounds --
18 for the grounds based on the Lumidigm, it is my opinion that
19 there's no anticipation or any obviousness of the asserted
20 claims for the reasons that I cite.

21 Q. What was your overall conclusion on the lack of
22 written description opinion that was offered by Dr. Warren?

23 A. I provide -- it's my opinion that full written
24 description and enablement support is present for all the
25 claim limitations.

1 Q. And what was your overall opinion regarding
2 obviousness?

3 A. With respect to obviousness, it's my opinion that
4 for the grounds raised by Apple, it is my opinion that they
5 do not render any of the asserted claims as obvious.

6 Q. And what was your opinion regarding anticipation?

7 A. With respect to the anticipation ground, it's my
8 opinion that the grounds on anticipation do not render any
9 of the asserted claims as anticipated.

10 Q. Turning now to your analysis of the '745 patent,
11 let's look at slide 61, please.

12 Explain your analysis of the Apple Watch Series
13 0.

14 A. Yes. With respect to Series 0, which appears in
15 the '745 patent ground 1 --

16 Q. Dr. Madisetti, excuse me. I think we actually
17 need to move on to CBI Apple record, unless I'm mistaken
18 from Apple's counsel.

19 MS. FRAZIER: No, let's please go on to that
20 record.

21 JUDGE BHATTACHARYYA: We're moving on to the
22 Apple confidential record.

23 (Whereupon, the hearing proceeded in confidential
24 session.)

25

1 O P E N S E S S I O N

2

3 JUDGE BHATTACHARYYA: Moving back to the public
4 record.

5 BY MR. CLAASSEN:

6 Q. Dr. Madisetti, I'd like to turn to your analysis
7 of the objective indicia of nonobviousness.

8 A. Yes.

9 Q. Let's turn to slide 84, please. Will you briefly
10 explain your analysis regarding the objective indicia of
11 nonobviousness of the Asserted Patents?

12 A. Yes. With respect to the '501, '502, '648, and
13 the '745, I cite these various categories that there was
14 industry skepticism of, for example, SpO2 or oxygen
15 saturation at the wrist, for the '501, '502, '648, and the
16 '745 patents, and there's also skepticism about the
17 protrusion comprising a convex surface.

18 Also, these were unexpected results of the
19 claimed protrusion. There was a failure of others, such as
20 Apple. There are non-infringing alternatives that Apple
21 could have used for the asserted claims in the patents.

22 There's evidence of copying, and the commercial
23 success of the Apple Watch Series 6 and 7, and the nexus to
24 the patents and the claims that are asserted in this matter.

25 Q. Before we move to the next slide, I do need to

1 move back on to the Apple CBI record.

2 (Whereupon, the hearing proceeded in confidential
3 session.)

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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: Moving back to the public
4 record.

5 BY MR. CLAASSEN:

6 Q. Dr. Madisetti, can you explain your analysis
7 regarding skepticism?

8 A. Yes. There was skepticism in the art for the
9 claimed protrusions. A POSITA would understand and expect
10 that adding undue pressure to the measurement site would
11 displace blood away from the sensor believed to cause
12 measurement errors, Mendelson 799, Exhibit 1733.

13 The patent specification, for example, JX-1,
14 Figs. 5, 21 through 15, lines 15 to 43, also confirm that
15 this -- confirm this issue, that a POSITA would understand
16 that adding -- confirm the improvement due to the asserted
17 claims.

18 Further, a POSITA would understand that adding
19 the claimed protrusion would impose such pressure and cause
20 the type of error explained in Mendelson 799.

21 A POSITA would also have been skeptical of the
22 claimed protrusion comprising a convex surface because
23 increasing the contact pressure between the sensor and the
24 skin in a manner believed to cause errors.

25 The Multi-Detector Patents' inventors found

1 unexpectedly that a protrusion comprising a convex surface
2 can significantly improve -- significantly improved the
3 signal-to-noise ratio SNR of pulse oximetry sensors, as
4 shown, for example, in Fig. 5, Exhibit JX-1, columns 21, 15
5 through -- 15 through 43.

6 Eight years after the Multi-Detector Patents,
7 Apple recognized the benefits of a protrusion and other
8 claim limitations, and a protrusion comprising a convex
9 surface has also shown in its patent filing, CX-1569,
10 figures 1B, columns 3, column 9, 26 through 44.

11 Q. Turning to the next slide, please explain your
12 analysis regarding non-infringing alternatives.

13 A. Apple can use non-infringing alternatives. I've
14 identified two such alternatives. One is the Withings
15 ScanWatch, shown in Exhibit CX-1555 at 8. As I've shown,
16 the protrusion is flat there. And then the Amazfit GTR 2e.
17 Both these watches measure oxygen saturation without using a
18 protrusion comprising a convex surface as claimed. Amazfit
19 GTR 2e is Exhibit CX-1554.

20 Apple's choice to use the claimed protrusion in
21 the accused products rather than non-infringing alternative
22 is indicative of the nonobviousness of the asserted claims.

23 MR. CLAUSSEN: I believe we need to go back on
24 the Apple CBI confidential record again.

25 (Whereupon, the hearing proceeded in confidential

1 session.)
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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: Moving back to the public
4 record.

5 BY MR. CLAASSEN:

6 Q. Dr. Madisetti, please explain your analysis of
7 the commercial success in this case.

8 A. Yes. Based on my discussion with and review of
9 the report of Daniel McGavock, it is my understanding that
10 the increased sales of the Series 6 and 7 --

11 MR. CLAASSEN: Dr. Madisetti, I would like to
12 stop you for a moment. I think we do need to move back to
13 the Apple CBI record.

14 (Whereupon, the hearing proceeded in confidential
15 session.)

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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: Hello again, Mr. Goldberg.

4 Could you speak up? Are you perhaps on mute still?

5 THE WITNESS: How about now?

6 JUDGE BHATTACHARYYA: That's great.

7 THE WITNESS: Thank you.

8 JUDGE BHATTACHARYYA: To be on the safe side, I'm
9 going to swear you in again.

10 JACK GOLDBERG,

11 having been first duly sworn and/or affirmed
12 on their oath, was thereafter examined and testified as
13 follows:

14 DIRECT EXAMINATION

15 BY MR. LATEEF:

16 Q. Mr. Goldberg, you watched Dr. Sarrafzadeh's
17 testimony yesterday, correct?

18 A. Yes, I did.

19 Q. Have you analyzed Dr. Sarrafzadeh's arguments
20 regarding validity of claim 9 of the '127 patent?

21 A. Yes.

22 Q. Did you consider Dr. Sarrafzadeh's definition of
23 a POSA in your analysis of the validity of claim 9?

24 A. I did, and I used that definition in my analysis.

25 Q. Okay. And did you form an opinion regarding the

1 validity of claim 9?

2 A. Yes, I did.

3 Q. What is that opinion?

4 A. My opinion is that claim 9 is valid.

5 Q. Okay. And have you prepared some demonstratives
6 to assist you in explaining the validity of the '127 patent?

7 A. Yes.

8 Q. Could we please put up slide 1?

9 Is this the first slide of the demonstratives
10 that you prepared?

11 A. Yes, it is.

12 Q. Okay. Can you explain why Mendelson 1991 is
13 missing limitations of claim 9?

14 A. Yes. Mendelson 1991, Respondent's Exhibit 370,
15 has no thermal mass, no disclosure of the structure of its
16 ceramic substrate, and, therefore, does not disclose
17 elements 7A and 7D.

18 Further, there's no temperature sensor and
19 there's no thermistor disclosed by Mendelson, so elements 7E
20 and 7F and 9 are missing from Mendelson.

21 Further, there's no evidence that the addition of
22 a thermistor on Mendelson's ceramic substrate would
23 stabilize a bulk temperature such that the thermistor's
24 measurement of the bulk temperature would be a meaningful
25 measurement allowing LED wavelengths to be more reliably

1 estimated.

2 Q. Okay. Could we pull up Respondent's
3 demonstrative 7.27C.

4 Do you recall Dr. Sarrafzadeh discussing this
5 demonstrative slide?

6 A. I do, in relation to element 7H, yes.

7 Q. Okay. And then on this slide near the top right
8 he has written "undisputed."

9 A. I see that.

10 Q. Yes. Is there something on this slide that you
11 dispute?

12 A. Yes. There's a couple of things I'd like to
13 point out on this slide.

14 First of all, the image figure 1012 from
15 Respondent's Exhibit 458 has been annotated. The annotation
16 in the upper right including the blue arrow and the notation
17 SpO2 is in error. This is a diagram of an ear oximeter, not
18 a pulse oximetry, so that is just not true.

19 The other thing that he annotated is the blue
20 arrow on the left portion of the slide where it says, any
21 pulse oximeter, and I don't see this figure as being
22 representative of any pulse oximeter.

23 Q. Are there any materials that informed your
24 opinion about these two points that you brought up?

25 A. Yes. Fig. 1012 is a very, well, nearly

1 identical, to a similar figure in Webster, in the Webster
2 reference. And the Webster reference describes this as a
3 1970s-era ear oximeter. It's addressed in historical
4 fashion, and it points out that it precedes modern pulse
5 oximetry technology, and the slide does not show the
6 features of a modern pulse oximeter.

7 Q. Okay. Can we turn to your slide 2?

8 This looks like part of Dr. Sarrafzadeh's
9 presentation yesterday. Do you recall this?

10 A. I do.

11 Q. And have you annotated this slide?

12 A. Yes. I added the red box shown the center of the
13 image surrounding Cheung, et al. 1993, and I also added the
14 box at the bottom where the Cheung reference is described in
15 more detail as being United States Patent 5,259,381.

16 Q. Okay. And Exhibit RX-35, is that the Webster --

17 A. Oh, yes. Yes, Webster is Respondent's Exhibit
18 35, and the excerpt on the slide is at page 85, and the
19 reference information is from page 87.

20 Q. Okay. And Dr. Sarrafzadeh did not rely on the
21 Webster reference for a thermal mass; is that correct?

22 A. No, he did not.

23 Q. Okay. Turning to slide 3, could you please
24 explain your analysis of what limitations of claim 9 are
25 missing from Cheung?

1 A. Yes. Cheung, Respondent's Exhibit 406, the
2 figure here is Fig. 11 from that patent, Cheung's patent,
3 this figure shows a substrate containing LEDs and a
4 temperature sensor.

5 The point that's being made on the right portion
6 of the slide is from the file history of the '127 patent,
7 JX-008, at pages 360 to 367.

8 The allowable subject matter section in that
9 particular Office Action explains that the claims at issue
10 are allowed or over -- over the Cheung reference -- so that
11 the thermal mass that's present in Cheung does not satisfy
12 the requirements of the claims that were at issue.

13 Q. Okay. So in your opinion does Cheung have a
14 thermal mass?

15 A. Cheung does not have a thermal mass.

16 Q. Okay. And why is that?

17 A. Because in Cheung the mere placement of a
18 temperature sensor and LEDs on a substrate, which is not
19 described -- Cheung does not describe any aspect of the
20 substrate. The substrate has no reference number. Thermal
21 properties of the substrate are not described in any manner.
22 The temperature sensor is not there in order to provide a
23 bulk temperature measurement in the sense that it would be
24 meaningful in order to correct the wavelengths.

25 Q. And what does the temperature sensor of Cheung

1 measure?

2 A. Cheung describes the temperature sensor as
3 measuring the temperature of the sensor as a whole.

4 Q. Okay. And in your opinion does Mendelson and
5 Webster in combination disclose a thermal mass?

6 A. No. The combination of Mendelson and Webster
7 does not disclose a thermal mass.

8 Q. And in your opinion does Mendelson and Webster
9 measure a bulk temperature of a thermal mass?

10 A. No. My opinion is that that combination does not
11 disclose the bulk temperature measurement either.

12 Q. Okay. Turning to slide 4, could you please
13 explain why Yamada 605 is missing limitations of claim 9?

14 A. Yamada 605 is Respondent's Exhibit 381. The
15 figure shown in the slide here is Fig. 5. Fig. 5 includes a
16 substrate.

17 There is no thermal mass in Yamada 605.
18 Therefore, elements 7A and 7D are not disclosed. Further,
19 there's no temperature sensor that is used for estimating
20 the LED operating wavelengths in Yamada 605, and, therefore,
21 elements 7E, 7F, and 9 are not disclosed.

22 Q. Why is there no thermal mass disclosed in Yamada
23 605?

24 A. Yamada 605 does not describe a thermal mass,
25 which stabilizes and normalizes in a manner that allows the

1 bulk temperature as measured by the temperature sensor.
2 There is no temperature sensor here in the diagram such that
3 it can be used for reliably estimating LED operating
4 wavelengths.

5 Rather, Yamada uses the temperature sensor to
6 sound an alarm or make the system aware when the temperature
7 gets too high for safety reasons, and that's shown in the
8 Exhibit 381 at paragraph 111.

9 Q. Okay. Turning to slide 5, could you please
10 explain why Noguchi is missing limitations 7A, 7D, and 7F?

11 A. Yes. Noguchi, Respondent's Exhibit 353,
12 describes a system that, first of all, is not involved with
13 physiological measurements, and there is no description of a
14 bulk temperature on which LED operating wavelengths depend.

15 Rather, Noguchi has a temperature measurement
16 means for measuring the temperature of an LED or the
17 temperature of the environment in which the LED is disposed.

18 The purpose of making that temperature
19 measurement, again, is not to provide any information that
20 would allow the system to correct for temperature-dependent
21 operating wavelengths.

22 Q. Okay. Could you explain why there's no thermal
23 mass in Noguchi?

24 A. Well, Noguchi doesn't describe a thermal mass
25 that has the thermal characteristics and doesn't have the

1 properties that are required by the claim language, as I
2 understand the claim language as a person of skill would
3 understand the claim language. The thermal mass needs to be
4 thermally coupled to LEDs, needs to be thermally coupled to
5 a temperature sensor, and needs to provide a bulk
6 temperature on which the LED operating wavelengths depend.

7 Noguchi's temperature sensor is not for that
8 purpose and does not provide a bulk temperature.

9 Q. Turning to slide 6, please explain why Scarlett
10 lacks claim limitations?

11 A. Yes, Scarlett, Respondent's Exhibit 397, the
12 figure is Fig. 24.30, it's a textbook that discusses printed
13 circuit board broadly, multilayer printed circuit boards,
14 and Scarlett emphasizes, and I'll quote, the problem of heat
15 removal from tightly packaged components, and expresses
16 that, it's an important consideration in board design, and
17 that this type of board that Scarlett is discussing can be
18 manufactured to alleviate the problem.

19 However, there's no suggestion in Scarlett that
20 removing heat from a thermal mass is the same or provides a
21 bulk temperature measurement that's meaningful in order to
22 estimate LED wavelengths. The --

23 Q. Why was -- sorry. Go ahead.

24 A. I was going to say, the purpose of the
25 multi-wired board shown in Scarlett is different. It's

1 about -- it's about heat dissipation.

2 Q. Why did Dr. Sarrafzadeh reference Scarlett in his
3 analysis?

4 A. Scarlett was referenced as background material in
5 order to show obviousness to add thermal components to a
6 substrate, but Scarlett's purpose in adding those thermal
7 components does not correspond to any of the requirements of
8 the claim.

9 Q. Okay. Could we turn to your slide 7?

10 At a high level, in your opinion would claim 9
11 have been obvious in view of any of the combinations
12 discussed by Dr. Sarrafzadeh?

13 A. No, it would not. There are no pre-'127 -- before
14 the '127 patent, there are no suggestions that disposing
15 a -- a disclosure that disposing a thermal mass within a
16 substrate thermally coupling the LEDs in a thermistor to the
17 thermal mass and measuring a bulk temperature would improve
18 accuracy.

19 Simply having LEDs and a temperature sensor on a
20 ceramic board does not meet the limitations of claim 9.

21 Q. And could you please explain your opinion that
22 there's no motivation to combine any of the references?

23 A. The Webster reference in combination with the
24 Mendelson reference does not meet the claim language. One
25 would not be motivated to combine Mendelson with Webster in

1 order to solve the problem that the '127 patent solves.

2 In terms of Noguchi and Yamada, again, Noguchi is
3 not about physiological measurements, and there would be no
4 motivation to combine because Noguchi is addressing a
5 different issue entirely.

6 And, also, references to Scarlett doesn't help
7 either, because Scarlett is addressing a problem that is
8 different than what is addressed by the claim.

9 Q. Okay. Could we turn to your next slide?

10 Could you explain your analysis of objective
11 indicia of nonobviousness?

12 A. Yes. My domestic industry analysis shows that
13 claim 9 covers early and current rainbow« sensors. Those
14 rainbow« sensors have enjoyed significant commercial
15 success, and that success obviously depended on them
16 functioning to do what they were meant to do, which was to
17 measure a variety of physiological parameters in a manner
18 that hadn't been done before.

19 I've looked at Daniel, listened to Daniel
20 McGavock's testimony from earlier, and read his deposition,
21 and I saw his sales data, and I talked with him about the
22 commercial success and the fact that the rainbow« sensors'
23 functionality and success relied on the utilization of the
24 invention, the '127 patent, claim 9.

25 Further, the rainbow« sensors have received

1 significant industry praise. Let me go back one step.

2 The sales data is shown in Complainants' Exhibit
3 649C. Complainants' Exhibit 1378 is an exhibit showing many
4 awards that Masimo has received. At page 66, for example,
5 there's an award specifically related to the rainbow«
6 sensors.

7 So there are many other awards that reference --
8 that reference the rainbow« sensors as being a significant
9 contribution.

10 The claim thermal mass and temperature sensor, as
11 I said, claim 9, is essential to the accuracy that drove
12 this commercial success and continues to drive the
13 commercial success and industry praise of the rainbow«
14 sensors.

15 There's also references that teach away from
16 using a temperature sensor on the substrate, such as the
17 Huiki reference, Respondent's Exhibit 346, at 19, lines 17
18 through 29, and the Webster reference, 35 at page 36.

19 Q. What was that teaching away and those references?

20 A. In Huiki and Webster, alternative methods for
21 ascertaining a measure of temperature in order to help with
22 the correction for temperature-dependent wavelength are
23 taught, and those alternatives are not what is covered by
24 claim 9 of the patent, of the '127 patent, alternatives,
25 such as measuring the forward voltage across the diodes, the

1 light-emitting diodes or having an awareness of the current
2 in those diodes.

3 Q. And were you here to watch Mr. Diab's testimony
4 earlier this week?

5 A. I was.

6 Q. And did you rely on any of his testimony
7 regarding the rainbow« sensor technology and the '127
8 patent?

9 A. I referenced in my earlier presentation Mohamed's
10 testimony in relation to the inventive material of the '127
11 patent and of the work that was put in in order to develop
12 the '127 patent and of his surprise.

13 I don't know if that's the right word, but his
14 delight and surprise that one could balance the thermal
15 properties of the substrate in such a manner and have the
16 success to provide that bulk temperature to estimate the
17 wavelengths in a meaningful way.

18 Q. So based on your analysis of the prior art and
19 objective indicia of nonobviousness, what is your opinion
20 regarding the validity of claim 9?

21 A. Again, I feel that claim 9 is indeed valid.

22 MR. LATEEF: Pass the witness, Your Honor.

23 MR. SELWYN: May I proceed, Your Honor?

24 JUDGE BHATTACHARYYA: Yes.

25

1 CROSS-EXAMINATION

2 BY MR. SELWYN:

3 Q. Mr. Goldberg, you would agree that all of the
4 individual limitations of the asserted claims of the '127
5 patent were known in the prior art, correct?

6 A. I would not.

7 Q. You would not. Okay. Let's talk about what was
8 known in the prior art then, sir.

9 Oximeters having a detector capable of detecting
10 light emitted by light-emitting sources after tissue
11 attenuation were known before the '127 patent, correct?

12 A. Yes.

13 Q. Multilayer circuit boards were known before the
14 '127 patent, correct?

15 A. Multilayer circuit boards are not a limitation of
16 the '127 patent.

17 Q. Sir, were multilayer circuit boards known before
18 the '127 patent, yes or no?

19 A. Yes, sir.

20 Q. Were multilayer circuit boards with multiple
21 layers of thermally conductive copper known before the '127
22 patent?

23 A. Yes.

24 Q. Were multilayer circuit boards with a thermal
25 core known before the '127 patent?

1 A. Yes.

2 Q. Were pulse oximeters with ceramic substrates
3 known before the '127 patent?

4 A. Yes.

5 Q. Would you agree that oximeters with red and
6 infrared LED and a photodetector mounted on the same circuit
7 board were known before the '127 patent?

8 A. Yes.

9 Q. Oximeters with temperature sensors were known
10 before the '127 patent, correct?

11 A. Yes.

12 Q. Thermistors have been known for decades, correct?

13 A. Yes.

14 Q. As a property of physics, the wavelengths of LEDs
15 change based on temperature, correct?

16 A. Yes, that's true.

17 Q. And you'd agree that in prior art pulse oximeters
18 the wavelengths emitted by LEDs change with temperature,
19 correct?

20 A. Yes.

21 Q. It was known for an oximeter to adjust its
22 temperature of oxygen level based on temperature before the
23 '127 patent, correct?

24 A. I did not understand your question. I can't
25 answer that.

1 Q. Let me ask it again. Was it known for an
2 oximeter to adjust its determination of oxygen level based
3 on temperature before the '127 patent?

4 A. Yes.

5 Q. Now, you testified about secondary considerations
6 a moment ago, correct?

7 A. Yes, I did.

8 Q. Now, you never saw the '127 patent before you
9 were hired for this matter, correct?

10 A. I remember being asked that question before, and
11 I'm not sure because I've seen so many Masimo patents over
12 the years I've been involved with the technology for
13 decades.

14 Q. Sir, isn't it true that the first time you recall
15 having seen the '127 patent is after you were engaged for
16 this matter?

17 A. I would say that I certainly do not recall the
18 details, knowing the details of the '127 patent, previous --
19 previous to being involved in this suit.

20 Q. That's not my question. Let me ask again.

21 Yes or no, sir, the first time you recall having
22 seen the '127 patent is after you were engaged for this
23 matter, correct?

24 A. As I sit here, it's the first time I recall, yes.

25 Q. You've never seen the '127 patent referenced in

1 any publication, correct?

2 A. No. No, I haven't.

3 Q. You're not aware of any books or papers or
4 articles that mention the '127 patent, correct?

5 A. That's correct.

6 Q. You're not aware of any awards or praise for the
7 '127 patent, correct?

8 A. That specifically addressed the '127 patent, I'm
9 not aware of any awards or praise that specifically mentions
10 the '127 patent.

11 Q. And you're not aware of any awards or praise
12 received by the named inventors of the '127 patent, correct?

13 A. I did not -- I don't know.

14 Q. In fact, you've never seen any reference to the
15 '127 patent anywhere except for Masimo's own documents,
16 correct?

17 A. I would say yes.

18 Q. You've never discussed the '127 patent with any
19 of the named inventors, correct?

20 A. I guess not, no.

21 Q. That wasn't something you were interested in
22 doing, correct?

23 A. I didn't confer with the named inventors. I have
24 to think. I know -- I don't know if I could name all the
25 inventors actually, but I certainly -- certainly have had

1 discussions with Mohamed Diab broadly. He is aware of my
2 involvement here.

3 Q. Sir, focus on my question. You've never
4 discussed the '127 patent with any of the named inventors,
5 correct?

6 A. I don't think so.

7 Q. You're not aware of any licenses to the '127
8 patent, correct?

9 A. I'm not aware of any licenses.

10 Q. And you haven't identified a shred of evidence,
11 either in your testimony today or in any of your reports in
12 this case, of any copying of the '127 patent by Apple; isn't
13 that true?

14 A. I'm not sure I can answer that.

15 Q. Well, let's pull up your deposition. Can we have
16 page 176, lines 7-9?

17 Question -- were you asked this question and gave
18 this answer:

19 Question. You haven't suggested in your report
20 that Apple copied the '127 patent, correct?

21 Answer. I make -- I make no statement like that.

22 Were you asked that question and did you give
23 that answer?

24 A. Yes, I did.

25 Q. One last question, sir. Before the '127 patent,

1 it was known to use a temperature sensor on the LED
2 substrate to compensate for wavelength changes due to
3 temperature, correct?

4 A. I would say so, yes.

5 MR. SELWYN: Thank you. Nothing further.

6 MR. LATEEF: We have nothing further, Your Honor.
7 Thank you.

8 JUDGE BHATTACHARYYA: Thank you, Mr. Goldberg.
9 You may step down.

10 MR. RE: Good afternoon, Your Honor.

11 JUDGE BHATTACHARYYA: Good afternoon.

12 MR. RE: Masimo and Cercacor call as their next
13 witness Mr. Robert Stoll.

14 JUDGE BHATTACHARYYA: Let's make sure Apple's
15 counsel is here.

16 MS. FRAZIER: Your Honor, Ms. Vreeland will do
17 the cross-examination for this.

18 JUDGE BHATTACHARYYA: Good afternoon, Mr. Stoll.

19 THE WITNESS: Good afternoon, Your Honor.

20 JUDGE BHATTACHARYYA: Do you understand that
21 you're under an obligation to tell the truth here today?

22 THE WITNESS: I do.

23 ROBERT STOLL,

24 having been first duly sworn and/or affirmed
25 on his oath, was thereafter examined and testified as

1 follows:

2 JUDGE BHATTACHARYYA: Thank you.

3 THE WITNESS: Thank you.

4 DIRECT EXAMINATION

5 BY MR. RE:

6 Q. Mr. Stoll, where do you work today?

7 A. I work for Faegre Drinker Biddle & Reath in
8 Washington, D.C.

9 Q. And can you briefly summarize your experience in
10 the area of Patent Office requirements and procedures?

11 A. I spent 29 years at the Patent and Trademark
12 Office. I started off as a junior examiner. I was promoted
13 to a supervisory examiner. I had several promotions in the
14 management and policy area. And I finished my career at the
15 Patent and Trademark Office as the Commissioner for Patents
16 where I oversaw eight thousand patent examiners and all
17 policy and procedures related to patent prosecution. And I
18 ended there in the end of 2011, at which time I began at
19 Faegre, and I've been there about ten years, where I
20 supervise patent prosecution, I testify, I've represented
21 people through the Office of Enrollment and Discipline, I do
22 policy issues, and I troubleshoot complex applications.

23 MR. RE: Your Honor, because I know this is
24 undisputed, Masimo and Cercacor offer Mr. Stoll as an expert
25 on Patent Office practice and procedure.

1 MS. VREELAND: No objection, Your Honor.

2 JUDGE BHATTACHARYYA: At this time -- let me
3 formally -- at this time Mr. Stoll is admitted as an expert
4 on Patent Office practice and procedure.

5 MR. RE: Thank you, Your Honor.

6 Q. Mr. Stoll, are you familiar with Apple's
7 allegations that the '501, '502, '648, and '745 patents are
8 unenforceable due to prosecution laches?

9 A. I am.

10 Q. And did you analyze specifically those
11 allegations?

12 A. I did.

13 Q. And what did you do to analyze the sufficiency or
14 the correctness of those allegations?

15 A. I looked at the entire prosecution history of the
16 parent, the parents of those applications.

17 Q. And I understand you prepared a demonstrative
18 slide to help illustrate your testimony.

19 Can we call that up?

20 What does this slide generally show?

21 A. It shows key dates in the parent applications of
22 the '501, the '502, and the '648.

23 Q. And do you understand that Apple alleges that
24 there was a five-year gap from the filing of the '352
25 application in 2010 to the filing of the '290 application in

1 2015?

2 A. I do, but I don't really understand what the gap
3 is or what any gap is. This shows quite clearly that
4 prosecution was progressing in these three applications in a
5 normal pace consistent with practice at the Patent and
6 Trademark Office in continuing applications, and I don't see
7 any delay.

8 Q. Okay. I wonder if you can also explain using
9 this chart that I understand there was an abandonment of the
10 first case. Do you see that?

11 A. I do.

12 Q. Did that abandonment in any way cause any delay
13 whatsoever in the prosecution of these patent applications?

14 A. It did not.

15 Q. And how do you know that?

16 A. Because I can see that the 829,352 was filed way
17 before the application of the 534,827 and was progressing in
18 a normal pace for a continuing application.

19 Q. I also notice that there's a publication date of
20 February 4th, 2010. How does that affect your opinions with
21 regard to prosecution laches?

22 A. Well --

23 MS. VREELAND: Your Honor, we would object to the
24 extent there would be any opinions on the ultimate issue. I
25 think Your Honor allowed him for purposes of Patent Office

1 practice and procedure.

2 JUDGE BHATTACHARYYA: That's correct.

3 Mr. Re, I'm assuming you're not seeking to elicit
4 opinions on the ultimate issue of prosecution laches.

5 MR. RE: No. I'll withdraw and rephrase.

6 BY MR. RE:

7 Q. What's the practical effect of publication of the
8 application back in 2010?

9 A. Well, you can see that on February 4th, 2010,
10 application number 827 published, which means that the
11 specification is in the public domain, and anyone can look
12 at the specification and the prosecution of the applications
13 after that, and they can know that, in fact, the subject
14 matter contained in that specification could be claimed at a
15 later date in either that particular application or
16 continuing applications as specified by statute.

17 Q. I understand you've prepared another slide with
18 regard to the '745 prosecution; is that right?

19 A. I did.

20 Q. Can we call that up?

21 What does this slide show?

22 A. This slide shows the key dates in the prosecution
23 of the parent of the '745 application.

24 Q. Can you explain your opinion that this shows that
25 the '745 patent application followed normal and acceptable

1 continuation practice?

2 A. Absolutely. You can see that it's published in
3 January of 2017. You can see that there are actions going
4 back and forth between the Examiner and the applicant. You
5 can see that it was issued.

6 Well, there's a Notice of Allowance on July 29th,
7 2019, and then there was a Petition to Withdraw to Consider
8 References, and a fairly quick Notice of Allowance after
9 that and payment of the issue fee.

10 Q. Based on your experience, are you familiar with
11 the ways in which a patentee might delay prosecution?

12 A. Yes, I am.

13 Q. And explain what those ways are.

14 A. Well, you could refuse to take an allowance, you
15 could delay an allowance, you could abandon allowed
16 application, you could not progress the prosecution of an
17 application in a manner that conforms with normal practice,
18 and you can take more time than you should with respect to
19 responding to actions.

20 Q. And based on your review, did you form an opinion
21 as to whether any of those types of activities took place
22 during the prosecution of the Masimo patents at issue here?

23 A. I did, and there was no delay, and there was none
24 of those actions that occurred, and this -- the prosecution
25 followed normal prosecution as provided by the statutes.

1 Q. Now I notice in the first parent it seems like
2 there was some delay with regard to issuance of the first
3 Office Action. Did you notice that?

4 A. Yes. I think there was one -- there was a delay
5 in another one as well, and it was not uncommon back in that
6 time period to have two and a half to three years before the
7 Patent and Trademark Office picked up an application.

8 Q. So that's a delay caused by the Patent Office
9 waiting to pick up the application, right?

10 A. Yes, it is.

11 MS. VREELAND: Object to the leading.

12 Q. Why does it take the Patent Office sometimes so
13 long --

14 JUDGE BHATTACHARYYA: Mr. Re, can you respond to
15 the objection?

16 MR. RE: I'll withdraw. I'll rephrase.

17 JUDGE BHATTACHARYYA: All right. Then the answer
18 is stricken to that question.

19 Q. Why does it take the Patent Office so long to
20 pick up an application to issue a First Office Action
21 allowance or First Office Action response?

22 A. Back in this time frame, we were in excess of
23 525,000 patent applications filed per year, they're in a
24 queue, and they normally examine the first received, and it
25 takes a while for the Court to get to the applications that

1 are later filed.

2 Q. So based on your review of the file histories of
3 the patents at issue in this investigation, of which you are
4 opining, what is your final conclusion with regard to the
5 prosecution of the Poeze and '745 patent families?

6 A. There was a continuous unbroken chain of patent
7 prosecution. There was no delay. And these conform with
8 the practices of continuation as provided for by practice.
9 I saw no issues related to any delay in the prosecution of
10 these applications.

11 MR. RE: I have no further questions. I pass the
12 witness.

13 MS. VREELAND: Your Honor, we would like to take
14 up the implications of this testimony in our post-hearing
15 briefing, but we have no questions at this time.

16 JUDGE BHATTACHARYYA: Thank you.

17 MR. RE: Thank you.

18 JUDGE BHATTACHARYYA: Thank you, Mr. Stoll.

19 THE WITNESS: Thank you. Have a great day,
20 Your Honor.

21 MS. SWAROOP: Your Honor, our next witness will
22 be Daniel McGavock, and Mr. Laquer will be conducting that
23 examination.

24 MR. LAQUER: Good afternoon.

25 THE WITNESS: Good afternoon.

1 JUDGE BHATTACHARYYA: Welcome back, Mr. McGavock.

2 DANIEL MCGAVOCK,

3 having been first duly sworn and/or affirmed
4 on his oath, was thereafter examined and testified as
5 follows:

6 DIRECT EXAMINATION

7 BY MR. LAQUER:

8 Q. Welcome back, Mr. McGavock.

9 A. Thank you.

10 Q. Have you formed any opinion on commercial success
11 in connection with your work in this investigation?

12 A. Yes. It's my opinion that the Apple Series 6 and
13 7 Watch products have achieved commercial success, and that
14 that commercial success -- and that there was a nexus
15 between that commercial success and the asserted watch
16 patents in this litigation relating to the blood sensor
17 feature of those products.

18 And I've also -- I've also concluded that the
19 rainbow« DI product, domestic industry product, has achieved
20 commercial success, and there's a nexus between that
21 commercial success and the '127 patent.

22 Q. Have you prepared demonstratives to assist with
23 your testimony on that subject?

24 A. Yes, I have.

25 Q. Let's go ahead and pull those up.

1 Have you reviewed public statements from Apple
2 around the time of its launch of the Series 6 Watch? Next
3 demonstrative.

4 A. Yes, I have. We're looking at CX- --

5 Q. There's a different version. Why don't you go
6 ahead, Mr. McGavock.

7 A. Yes. One of the first things I looked at was
8 there was a launch video produced in this case in which
9 Apple introduced the Series 6 watch, and it featured the
10 Chief Operating Officer of Apple.

11 And in that video they prominently discussed the
12 importance of the blood-sensing feature in the Series 6, and
13 that video -- I encourage you to watch it because there was
14 also discussion about the timing of the launch and the
15 importance of that technology given the COVID pandemic.

16 Q. Thank you. And let's go to the next slide.
17 There we go.

18 Do you recognize what's shown on the
19 demonstrative here?

20 A. Yes. I was just talking about CX-1289. And the
21 Chief Operating Officer talks about an amazing new
22 capability, and he is referring to the blood oxygen sensor
23 right from your wrist.

24 Q. Let's go on to the next slide.

25 Have you reviewed Apple's press release from the

1 Apple Watch Series 6?

2 A. Yes, this went along with the launch. It was
3 CX-1287, and it states that the Series 6 completely
4 redefines what a watch can do, and it discusses the blood
5 oxygen sensor in app.

6 Q. Moving on to the next slide, have you reviewed
7 any marketing material from Apple regarding its accused
8 Apple Watch devices?

9 A. Yes. We're looking at CX-0252, and this is the
10 website for the Series 6 watch, and the first thing you see
11 is the display of the watch featuring the blood oxygen
12 feature.

13 What I found interesting, if you go to the
14 website, it's animated, it turns around. It shows you the
15 infrared LED sensors. And I also thought that the website
16 did a very good job of describing to consumers the
17 importance of measuring blood oxygen, and then it goes on to
18 state how the sensor works. So I thought that was very
19 relevant to my opinion.

20 Q. Let's go on to the next slide.

21 Have you reviewed any third-party material
22 regarding the Series 6 watch?

23 A. Yes, several things. Here are a couple examples.
24 CX-1643 is a Business Tech publication in which it describes
25 the Series 6, and it says that the blood oxygen sensor

1 dominated the introduction and was the feature that Apple
2 spent the most time talking about.

3 And CX-1301 is an excerpt from The New York Times
4 in which they state that the Apple Watch can be summed up in
5 two words, "blood oxygen."

6 And it describes the most significant new feature
7 in the Apple Watch Series 6 and also states it was not
8 otherwise that different from the prior year's Apple Watch.

9 Q. Have you reviewed any market share data regarding
10 the Apple Watch Series?

11 A. Yes.

12 Q. Could we go to the next slide?

13 A. Yes. So the market share data is captured in
14 CX-1285 and CX-1286. So if you look at the top of this
15 chart, this is overall Apple market share.

16 So the Series 6 was launched in Q4, so Q4 results
17 are the first time you actually see the results of the Apple
18 Watch Series 6. So if you just compare year over year, Q4
19 of 2019 was 34 percent, and you have a significant jump in
20 share in Q4 of 2020.

21 And then CX-1295 and CX-1644 refer to an industry
22 publication in which it's recognized that the Series 6, as
23 of August '21, was by far the world's most popular
24 smartwatch model and by far the world's best selling
25 smartwatch at that time. So that's somewhat after the

1 launch in August of 2021.

2 Q. Dr. Madisetti mentioned a conversation that he
3 had with you. Can you describe what you discussed with
4 Dr. Madisetti?

5 A. Yes. I discussed with him the nature of the
6 patents and just confirmed my understanding that the
7 asserted patents -- the blood oxygen feature incorporated in
8 the Apple Watch Series 6 and 7 Watches are covered by the
9 patents, and they're also fundamental to the performance of
10 that feature.

11 Q. And how does that --

12 MR. MUELLER: Your Honor, to the extent these
13 numbers come from any confidential documents, I would just
14 ask that the last minute be on the confidential record and
15 that we go on the confidential record to the extent there's
16 going to be any discussion of confidential numbers.

17 I don't know if these numbers are from
18 confidential sources or not, but out of an abundance of
19 caution I just wanted to put that on the record.

20 MR. LAQUER: These are not, and we identified to
21 yesterday to Apple's counsel, which exhibits are
22 confidential. Those exhibits are marked with a C as
23 demonstrative slides.

24 If there is some concern, we can go on the
25 confidential record and work it out later, though, if that

1 would address Mr. Mueller's concern.

2 MR. MUELLER: That sounds good.

3 MR. LAQUER: The next slide I plan to go on the
4 confidential record anyways, so if you want to do it now
5 that's fine.

6 MR. MUELLER: That would be great.

7 JUDGE BHATTACHARYYA: Moving onto the Apple
8 confidential record.

9 (Whereupon, the hearing proceeded in confidential
10 session.)

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1 O P E N S E S S I O N

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3 JUDGE BHATTACHARYYA: Moving back to the public
4 record.

5 MR. LAQUER: May I proceed?

6 JUDGE BHATTACHARYYA: Yes, you may.

7 BY MR. LAQUER:

8 Q. Mr. McGavock, what are your conclusions regarding
9 the commercial success of the Apple Watch Series 6 and 7?

10 A. That both products have achieved commercial
11 success and there's a nexus between that commercial success
12 and the blood oxygen sensing feature covered by the asserted
13 patents in this litigation.

14 MR. LAQUER: Your Honor, at this point I would
15 like to go onto Masimo's confidential record.

16 JUDGE BHATTACHARYYA: Moving onto the Masimo
17 confidential record.

18 (Whereupon, the hearing proceeded in confidential
19 session.)

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3 JUDGE BHATTACHARYYA: Moving back to the public
4 record.

5 CROSS-EXAMINATION

6 BY MR. MUELLER:

7 Q. May I proceed, Your Honor?

8 JUDGE BHATTACHARYYA: Yes, please.

9 Q. Thank you.

10 Good afternoon, Mr. McGavock.

11 A. Good afternoon.

12 Q. Now you've offered opinions today, sir, on the
13 subject of commercial success with regard to the five
14 patents in suit, correct?

15 A. Yes.

16 Q. And today you are offering those opinions --

17 JUDGE BHATTACHARYYA: We lost your sound.

18 MR. MUELLER: I heard you the entire time. There
19 was some glitch in my system here. I apologize. Is that
20 better?

21 THE WITNESS: Yes. Thank you.

22 BY MR. MUELLER:

23 Q. Okay. So, sir, you're offering these opinions on
24 commercial success today as part of Masimo's rebuttal case
25 on invalidity, correct?

1 A. Yes, that's my understanding.

2 Q. Now let me just try to break this down, if I
3 could.

4 You just now spoke about the rainbow« sensors
5 which are the alleged domestic industry product for the '127
6 patent, correct?

7 A. Yes.

8 Q. And you also talked about the Masimo Watch, with
9 respect to the -- I'm sorry -- the Apple Watch, with respect
10 to the other four patents-in-suit; is that right, sir?

11 A. That's correct, as well as the '127 patent.

12 Q. And for the Apple Watch -- I'm sorry. Let's set
13 the '127 patent to the side, and I want you to have in mind
14 the '745 patent, the '501, the '502, and the '648, so the
15 four other than the '127.

16 Do you have those in mind, sir?

17 A. Yes, I do. Thank you.

18 Q. For those four patents, the alleged domestic
19 industry product is only, only the Masimo Watch, not the
20 rainbow« sensors, correct?

21 A. That is correct.

22 Q. But you did not offer any opinion today of the
23 commercial success of the Masimo Watch, right?

24 A. That is correct, for good reasons. May I
25 explain?

1 Q. And the good reasons are there, in fact, has been
2 no commercial success to date for the Masimo Watch, correct?

3 A. I wouldn't state it that way. I think they have
4 made significant --

5 Q. Time is short. If you want to take it up with
6 your counsel, you can. But if you could just answer me yes,
7 no, or you can't answer the question, yes or no. Okay, sir?

8 A. I was trying to answer. I don't think it was a
9 yes or no question.

10 Q. Let me pose it as a yes or no question.

11 As of today, as of today, the Masimo Watch has
12 not achieved appreciable commercial success, yes, no, or you
13 can't answer the question?

14 A. I disagree and I can explain why.

15 Q. And, in fact, sir, you know that the Chief
16 Financial Officer of Masimo testified on Tuesday that he
17 wasn't sure whether the Masimo Watch had achieved \$1,000 in
18 revenues as of today, and that was on the public record.
19 You understand that, sir, right?

20 A. Yes.

21 Q. Now you, in any event, have not offered any
22 opinion on commercial success of the Masimo Watch, correct?

23 MR. LAQUER: I think you're going into Masimo
24 confidential business information.

25 Q. No, I'm just saying you have offered no opinion

1 --

2 MR. LAQUER: What you just spoke about regarding
3 sales quantities and dollar amounts --

4 MR. MUELLER: No, that was in the public report.
5 I can confirm it was in the public record.

6 Q. Sir, can you please answer my question?

7 A. Well, I addressed -- I explain in my report that
8 I did not quantify metrics on the commercial success for the
9 Masimo Watch because it's not yet been fully launched.

10 Q. Sir, yes or no, you have offered no opinion today
11 of commercial success with regard to the Masimo Watch,
12 correct?

13 A. Correct.

14 Q. Okay. Now you instead offered an opinion of
15 commercial success with regard to the Apple Watch for these
16 four patents, right?

17 A. Series 6 and Series 7, correct.

18 Q. And that's, of course, based on the premise that
19 the Apple Watch Series 6 and Series 7, according to Masimo,
20 infringe those four patents, right?

21 A. Yes, that's my assumption.

22 Q. And, in fact, not only infringe, Dr. Madisetti
23 has offered the opinion that Apple copied those patents.
24 Did you see that, sir, that there's copying evidence?

25 A. I didn't focus on that, but I'll accept that.

1 Q. Did you hear Dr. Madisetti's testimony today,
2 today, on copying?

3 A. Yes.

4 Q. And he suggested there was a nexus to this case,
5 that's why he was offering the testimony today, he said
6 there's copying evidence in the case, right?

7 A. Yes.

8 Q. Now you understand that Dr. Goldberg, in
9 contrast, conceded he had no copying evidence whatsoever
10 with respect to the '127 patent. Did you hear him say that
11 not long ago?

12 A. Yes.

13 Q. And you also understand that six separate
14 individual Apple engineers took the stand and testified, and
15 every one of them said the ideas of the oxygen sensor in the
16 Apple Watch reflect their own ideas, not Masimo's ideas.
17 Did you hear that testimony?

18 MR. LAQUER: Your Honor, I'll object, beyond the
19 scope of direct. Mr. McGavock's testimony was specific to
20 the secondary consideration of commercial success.

21 MR. MUELLER: Your Honor, the reason why I'm
22 getting into this is because he has to have a nexus between
23 the commercial success and the actual products. The
24 asserted nexus here is infringement and copying. That's the
25 claimed nexus between the products and the patents. I'm

1 just testing that nexus.

2 MR. LAQUER: Mr. McGavock did not mention copying
3 in his direct testimony. Mr. Mueller's cross-examination is
4 beyond the scope.

5 JUDGE BHATTACHARYYA: The objection is sustained.

6 BY MR. MUELLER:

7 Q. Now today you showed a few articles or snippets
8 of articles, and I want to pull some of those up, if we
9 could. CDX-19.005.

10 You say, commercial success, third-party articles
11 regarding Apple Watch Series 6 highlighted blood oxygen
12 sensor.

13 This is one of the slides that you showed today,
14 correct, sir?

15 A. Yes.

16 Q. And you said that Apple had emphasized the
17 importance of the blood oxygen sensor in marketing for the
18 Apple Watch, correct?

19 A. Yes.

20 Q. Particularly important during the pandemic,
21 correct?

22 A. Yes.

23 Q. And your own opinion is that the sensor was
24 important to Apple's commercial success; is that fair?

25 A. I'm agreeing with Apple's views that this was a

1 very important feature to the product. I'm adopting how
2 they portrayed to the marketplace, to stockholders, to
3 customers, in the launch video, that's --

4 Q. You think the blood oxygen sensor was an
5 important driver of the commercial success of the Apple
6 watch, correct?

7 A. Yes.

8 Q. And you think it's particularly important to the
9 public during a time of --

10 MR. LAQUER: Your Honor, I'm going to object.
11 Mr. Mueller has repeatedly violated the Commission's order
12 not delegating the public interest to be taking evidence on
13 here.

14 Apple requested that in response to Masimo filing
15 the complaint. The Commission chose not to delegate the
16 public interest. And a very large amount of Mr. Mueller's
17 speaking during the past week has been seeking to build an
18 evidentiary record on the public interest after Apple was
19 specifically denied that request.

20 MR. MUELLER: Your Honor, if I might. The
21 witness has offered an opinion on commercial success today.
22 He has described the buying behavior of the public with
23 respect to this watch. I think I'm entitled to ask a few
24 questions about the public behavior with respect to buying
25 the watch.

1 This is what he offered an opinion about within
2 the last half hour.

3 MR. LAQUER: This question was not directed
4 toward public behavior on buying the watch. This is another
5 attempt to build the public interest record for the purpose
6 of review by the Commission on that issue. There will be a
7 time for that, but it is not now.

8 JUDGE BHATTACHARYYA: Okay. At this time the
9 objection is overruled. I'm not even sure what the question
10 was going to be. It was cut off in the middle.

11 You may renew your objection if the full question
12 comes out and it appears to be directed to public interest
13 and not directed to commercial success.

14 MR. LAQUER: Thank you, Your Honor.

15 BY MR. MUELLER:

16 Q. Mr. McGavock, you mentioned the pandemic during
17 your direct examination, did you not, sir?

18 A. Yes, in reference to that video.

19 Q. And you mentioned that the oxygen sensor was
20 particularly important to the commercial success of the
21 Apple Watch during the pandemic, correct, sir?

22 A. Well, I wasn't intending to emphasize that point.
23 I was just referring to the content of the video while
24 waiting for the slide to show up.

25 Q. Sir, I think you just told me two minutes ago

1 that you're adopting the views expressed by Apple that you
2 referred to.

3 Are you, yes or no, taking the view that the fact
4 that the blood oxygen sensor was introduced during the
5 pandemic was a factor in the commercial success of the Apple
6 Watch, yes or no?

7 A. I believe it was a factor, the notion of
8 measuring blood oxygen, there was a higher awareness, I
9 believe, during that time frame.

10 Q. In any event, you believe the oxygen sensor in
11 the Series 6 and Series 7 have been an important factor in
12 the commercial success of those two models of Apple Watch,
13 correct?

14 A. Yes.

15 Q. And you showed Her Honor these news clips right
16 here. To help validate that opinion, these are articles
17 that discuss the blood oxygen sensor as one of the features
18 in the watch, correct?

19 A. That's correct.

20 Q. Now three days ago, on Tuesday, you showed some
21 different news clips. I want to go to those. CDX-15C.019.

22 This is a slide that you used in your direct
23 examination on Tuesday, correct, sir?

24 A. Correct.

25 Q. And you used The Washington Post article,

1 which -- the snippet of which talks about some criticism of
2 the blood oxygen sensor in the Apple Watch, right?

3 A. Yes.

4 Q. You also showed this engineering.com snippet that
5 also includes some criticism, correct?

6 A. Yes.

7 Q. And then you showed a Respiratory Care snippet at
8 the bottom here, again, the snippet refers to some
9 criticism, right, sir?

10 A. Yes.

11 Q. And I asked you some questions about this slide
12 on Tuesday. I'm not going to go through all those again.
13 But the purpose of this was to suggest, as you suggested,
14 during your direct examination, that Apple had actually
15 caused injury to the blood oxygen sensor industry by
16 marketing a flawed blood oxygen sensor, correct?

17 A. Yes. I was in the context of discussing the bond
18 determination, that this is a risk factor for Masimo and its
19 DI product because Masimo has -- believes it has much more
20 accurate technology, medical-grade technology, and so these
21 shortcomings create a risk that I thought -- I suggested
22 might be taken into account in considering the bond.

23 Q. Right. So let's see if we can put this slide
24 right here, CDX-15C.019, side by side with the slide that I
25 just used, CDX-19.005, see if we can put these side by side.

1 So let me just make sure I have this straight.
2 Masimo's position in this case is that Apple is infringing
3 the five patents-in-suit, correct, sir?

4 A. Yes.

5 Q. That by using those patents, it has created a
6 sensor that is fundamentally flawed, and you believe that
7 there's a true problem caused by the flaws in that sensor,
8 correct?

9 A. I'm not providing technical opinions and I'm not
10 sure --

11 Q. Sir, stay with my question. The slide on the
12 left --

13 A. You're misstating the slide.

14 Q. Time is short, and your counsel can ask you
15 questions.

16 But your opinion is that by creating a blood
17 oxygen sensor that purportedly infringes the five patents in
18 the suit, Apple has actually created a flawed sensor as
19 reflected in your slide, yes, no or you can't answer the
20 question?

21 A. I can't answer the question. I'm not providing
22 technical opinions, but the spotty performance --

23 Q. Sir, please, yes, no, or you can't answer the
24 question.

25 A. I can't answer the question without further

1 explanation.

2 Q. And then today, today, that same flawed sensor
3 you talked about on Tuesday, according to you flawed, is a
4 critical driver of commercial success that has driven sales
5 of the Apple Watch, right, sir? Yes, no, or you can't
6 answer the question.

7 A. That is correct. So Apple has --

8 Q. Sir, please, yes, no, or you can't answer the
9 question.

10 A. Yes.

11 MR. MUELLER: I have no further questions,
12 Your Honor.

13 MR. LAQUER: Brief redirect, Your Honor.

14 JUDGE BHATTACHARYYA: Yes.

15 REDIRECT EXAMINATION

16 BY MR. LAQUER:

17 Q. Mr. McGavock, why didn't you address the --

18 MR. MUELLER: Your Honor, before he answers, I
19 want to object to any new opinions now. It's way too late
20 for a new opinion of commercial success on the Masimo Watch.

21 It's Friday, close to 5:00 of the hearing, and
22 there's no way we should hear a new opinion on the Masimo
23 Watch with ten minutes left in the hearing.

24 MR. LAQUER: This is directly responsive to a
25 question that counsel asked during cross-examination and

1 then cut the witness off during his answer.

2 MR. MUELLER: No, Your Honor. I asked him to
3 confirm he had not offered any opinion on the Masimo Watch,
4 and he confirmed it. It's way too late to be receiving a
5 new opinion on the Masimo Watch. That's not opening the
6 door to anything. That's confirming that he had not offered
7 that opinion.

8 MR. LAQUER: We disagree. He could have made
9 that confirmation. The record speaks for itself. Just
10 based on the record and the briefing, he asked the question,
11 the door is open. Mr. McGavock has the right to give a full
12 response on Masimo's clock.

13 MR. MUELLER: Again, Your Honor, I object to any
14 new opinions coming in with ten minutes left in the hearing
15 ones that should have been disclosed months ago, if not all.

16 JUDGE BHATTACHARYYA: Let's proceed. I'm not
17 sure he's going to be offering any new opinions. We can
18 take it up if he is offering new opinions.

19 BY MR. LAQUER:

20 Q. Mr. McGavock, why did you not address the
21 commercial success of the Masimo Watch in your commercial
22 success analysis?

23 A. Because it was, as described in my report, it's
24 pre-commercial launch, and my reports describe the fact that
25 so far it's achieved positive results with respect to the

1 pilot phase, and now they are in the limited marketing
2 phase.

3 Q. Mr. Mueller also brought up articles that you
4 mention in connection with your bond analysis and compared
5 them to articles that you addressed in your commercial
6 success analysis. And you were, it seemed, attempting to
7 give some more fulsome explanation to your answers there.

8 Can you explain the difference of your opinion in
9 the articles regarding the bond analysis articles as
10 compared to the commercial success analysis ones?

11 A. Yes. The commercial success articles were
12 focusing on the market and commercial performance of the
13 product and the way that Apple marketed the blood oxygen
14 feature. And so Apple has clearly achieved commercial
15 success.

16 The other articles were discussing the actual
17 performance of those, more from a more technical standpoint.
18 And so it's an interesting combination where the
19 introduction -- Apple's achieved significant commercial
20 success using this technology, but at the same time is
21 creating risk for Masimo by not having what it believes to
22 be the appropriate level of medical-grade reliability and
23 quality.

24 MR. LAQUER: I have no further questions.

25 MR. MUELLER: I have no further questions for

1 this witness, Your Honor.

2 JUDGE BHATTACHARYYA: Thank you, Mr. McGavock.

3 THE WITNESS: Thank you.

4 JUDGE BHATTACHARYYA: You can step down.

5 MS. SWAROOP: Your Honor, I wasn't sure we could
6 do it, but we have completed all of our witnesses for both
7 sides here over the past five days, and this does complete
8 the presentation of Masimo's rebuttal case.

9 We do have a couple of housekeeping matters I
10 think we wanted to attend to.

11 JUDGE BHATTACHARYYA: Yes.

12 MS. SWAROOP: Would you like to do that now?

13 JUDGE BHATTACHARYYA: Yes, I would. Actually can
14 we take a break so I can make sure I have these documents in
15 my inbox and I can find them?

16 MS. SWAROOP: Yes, Your Honor.

17 MR. MUELLER: Certainly, Your Honor.

18 JUDGE BHATTACHARYYA: Also, an item that I want
19 to take up is either the page limit or word limit for the
20 post-hearing briefs.

21 MS. SWAROOP: That was on my list, Your Honor,
22 and I do believe we have agreement on that as well.

23 JUDGE BHATTACHARYYA: Okay, great. Then let's
24 take a three-minute break or so.

25 (Whereupon, the proceedings recessed.)

1 JUDGE BHATTACHARYYA: We can go back on the
2 record.

3 Can you tell me which lists are being moved into
4 evidence at this time?

5 MS. SWAROOP: Yes, Your Honor. I believe there's
6 a list that has additional exhibits from June 6, 8, and 9
7 that were inadvertently omitted from the prior list. I
8 think Ms. Frazier mentioned that earlier today. We have
9 that list submitted to Your Honor.

10 JUDGE BHATTACHARYYA: Yes, the list entitled
11 Table of Additional Admitted Exhibits for the Evidentiary
12 Hearing on June 6, 8, and 9, 2022.

13 Are there any objections to admission of these
14 exhibits?

15 MS. FRAZIER: No, Your Honor.

16 JUDGE BHATTACHARYYA: Then that list of exhibits
17 is admitted into evidence.

18 (Whereupon, the exhibits as recited by counsel
19 and reflected in the attached index were submitted and
20 received in evidence.)

21 JUDGE BHATTACHARYYA: Please send a copy to the
22 court reporter.

23 MS. SWAROOP: The second thing, Your Honor, I
24 believe we had also submitted a chart of demonstratives for
25 the demonstratives that were submitted yesterday, so that's

1 a separate chart from the admitted exhibits.

2 JUDGE BHATTACHARYYA: Is this the Table of
3 Demonstratives for June 8th?

4 MS. SWAROOP: Yes, Your Honor.

5 JUDGE BHATTACHARYYA: I have a list entitled
6 Complainant's Table of Demonstratives for Evidentiary
7 Hearing on June 8th, 2022.

8 Do we have any objection to receiving these
9 demonstratives as demonstratives but not as substantive
10 evidence?

11 MS. FRAZIER: No, Your Honor, with that
12 understanding, no objection. And I understand the parties
13 will similarly compile a list based on today and submit that
14 to Your Honor as well.

15 JUDGE BHATTACHARYYA: Then that list is accepted
16 purely for demonstrative purposes. Please send a list to
17 the court reporter.

18 Are there any others at this time?

19 MS. SWAROOP: No, Your Honor. As Ms. Frazier
20 mentioned, the parties have an agreement to create a list
21 for today's exhibits and I believe either exchange that or
22 submit that on Monday. So we'll plan to do that.

23 JUDGE BHATTACHARYYA: Typically we do it before
24 the close of the hearing today, if that's possible. If it's
25 not possible, there will need to be a motion to reopen the

1 record to have those exhibits admitted. That's not a huge
2 problem, if the parties want to go that way, but typically
3 we try to take a 10- or 15-minute break and get it all done
4 today. Let me know what you would like to do.

5 MS. FRAZIER: Your Honor, Apple is happy, I
6 think, with 10 or 15 minutes we should easily be able to
7 compile the list and hopefully reach agreement with
8 Ms. Swaroop's team.

9 MS. SWAROOP: Your Honor, I'm not sure that we
10 can. I know there were some issues with exhibits, so I'm
11 not sure 10 or 15 minutes will be enough time for us. Apple
12 had proposed Monday, so we're happy to stick with Apple's
13 proposal and file a joint motion to submit the exhibits on
14 Monday.

15 JUDGE BHATTACHARYYA: Yes, file a joint motion.
16 Hopefully, there will be no objections that will introduce
17 more complications if there are objections.

18 Anything further?

19 MR. MUELLER: Your Honor, one last thing. I
20 wanted to recognize Nina Garcia, who is our NEXT attorney in
21 this program, and thank you for the program. And we thank
22 you, again, for the time and your consideration over the
23 course of the hearing. We appreciate it.

24 MS. SWAROOP: Your Honor -- please go ahead.

25 JUDGE BHATTACHARYYA: Just that I'm very pleased

1 that both parties are participating in the NEXT Advocates
2 Program. We're really hoping that it will encourage further
3 participation by less-experienced attorneys. So thank you
4 for participating in it.

5 MS. SWAROOP: Your Honor, I did have one more
6 housekeeping item. We did reach agreement on the
7 post-hearing brief proposal. Did Your Honor want us to set
8 forth what that agreement is on the record today?

9 JUDGE BHATTACHARYYA: Yes. Let me know your
10 proposal. I may not approve it. I'll issue an order on
11 Monday with the final page limit or word limit, but I'd like
12 to hear your proposal.

13 MS. SWAROOP: Yes, Your Honor. The proposal we
14 made was, and I believe we have agreement, was from one of
15 your investigations. It would be a word count limit of
16 125,000 words, images can be included, and if images include
17 more than 20 words, then that would be counted towards the
18 word limit, but if there are 20 words or less on the image,
19 that wouldn't be counted towards the word count.

20 JUDGE BHATTACHARYYA: Okay. Would you mind
21 sending that to me in an email as well?

22 MS. SWAROOP: Yes, Your Honor, we would be happy
23 to do that.

24 Your Honor, on behalf of Masimo and our team here
25 in California, we also wanted to express our sincere thanks

1 and appreciation for the time that you spent this week to
2 hear from all of our Masimo and Cercacor inventors and all
3 of our witnesses.

4 We would have loved to be there in Washington,
5 D.C. with you to present the case, but we did our best with
6 the logistics of the remote hearing, and we do very much
7 appreciate the careful consideration that you've given to
8 the evidence this week.

9 JUDGE BHATTACHARYYA: Thank you.

10 MR. MUELLER: We echo that, Your Honor. We
11 really do appreciate all of it, the entire week, we have
12 appreciated your careful consideration at every step along
13 the way, so thank you very much.

14 JUDGE BHATTACHARYYA: Thank you. I want to thank
15 counsel for their very helpful presentations. This is a
16 contentious case, and I think that your professionalism
17 really helped in moving us through and letting us finish on
18 time. Thank you very much for that.

19 I also want to thank Linda, our court reporter,
20 who did a wonderful job also getting us through this week,
21 and my attorney advisor, Ted Jou, who has helped at every
22 point in this investigation.

23 I hope everybody is able to relax over the
24 weekend after this week at work and thank you so much.

25 MR. MUELLER: You too, Your Honor. Have a good

1 weekend.

2 MS. SWAROOP: Thank you, Your Honor.

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4 (Whereupon, the proceedings concluded at
5 5:03 p.m.)

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1	C O N T E N T S			
2	INDEX OF WITNESSES			
3				
	WITNESS	DIRECT	CROSS	RE- DIRECT RE- CROSS
5	STEVE WARREN,	1181	1260	
6	VINCENT THOMAS,	1282	1312	
7	VIJAY MADISETTI,	1327	1383	1388
8	JACK GOLDBERG,	1391	1403	
9	ROBERT STOLL,	1409		
10	DANIEL MCGAVOCK,	1416	1428	1439
11				
12				
13				
14	AFTERNOON SESSION			1312
15				
16				
17	CONFIDENTIAL SESSIONS	1249-1260		1380-1390
18		1269-1271		1422-1424
19		1275-1276		1426-1427
20		1285-1320		
21		1355-1368		
22		1371-1373		
23		1377-1378		
24				
25				

1 Additional Exhibits Provided for Admission
2 Pursuant to Order No. 50
3 Table of Admitted Exhibits for the Evidentiary
4 Hearing on June 8, 2022
5 JACK GOLDBERG
6 CX-0330
7 CX-0419C
8 CX-0597C
9 CX-0839C
10 CX-0840C
11 CX-0845
12 CX-0846
13 CX-0847
14 CX-0849
15 CX-0850
16 CX-0853
17 CX-1724
18 CPX-0154C
19 VIJAY MADISETTI
20 CX-0307iC
21 CX-0329
22 CX-1038C
23 CX-1058C
24 CX-1062C
25 CX-1068C

1	CX-1069C
2	CX-1072C
3	CX-1074C
4	CX-1251C
5	CX-1406
6	CX-1407
7	CX-1447
8	CX-1449
9	CX-1451
10	CX-1492
11	CX-1532
12	CX-1546C
13	CX-1548C
14	CX-1646C
15	CX-1647C
16	CX-1705
17	CX-1726
18	CX-1727
19	CPX-0159
20	CPX-0159a
21	VIVEK VENUGOPAL
22	RDX-4
23	RPX-0040C
24	RPX-0041C
25	RX-0392C

1 RX-0895C
2 CX-1683
3 SAAHIL MEHRA
4 RX-0677C
5 Complainants' Table of Demonstratives for
6 Evidentiary Hearing on June 8, 2022
7 CDX-0013C
8 CDX-0011C
9 Complainants' Table of Demonstratives for
10 Evidentiary Hearing on June 6 and 10, 2022
11 CDX-0017C
12 CDX-0012C
13 CDX-0014C
14 CDX-0016C
15 CDX-0019C
16 Joint Table of Admitted Exhibits
17 (June 9 and 10, 2022)
18 DR. MAJIF SARRAFZADEH (June 9, 2022)
19 CPX-0106a
20 PROF. STEVEN WARREN, Ph.D. (June 10, 2022)
21 CX-1789C
22 CX-0335
23 RPX-001
24 RPX-002
25 RPX-006

1	RPX-007
2	RPX-033
3	RX-0249C
4	RX-0252C
5	RX-0335
6	RX-0456
7	RX-0460
8	RX-0473
9	RX-0478
10	RX-0484
11	RX-0487
12	RX-0489
13	RX-0495
14	RX-0502
15	RX-0504
16	RX-0508
17	RX-0510
18	RX-0515
19	RX-0517
20	RX-0519
21	RX-0520
22	RX-0523
23	RX-0624
24	RX-0632
25	RX-0635

1	RX-0648
2	RX-0652
3	RX-0654
4	RX-0665
5	RX-0666
6	RX-0667
7	RX-0668
8	RX-0670
9	RX-0673
10	RX-0700
11	RX-0748
12	RX-0812
13	RX-1220
14	RX-1221
15	RX-1470C
16	VINCENT THOMAS (June 10, 2022)
17	RX-1462C
18	VIJAY MADISETTI (June 10, 2022)
19	CX-0097C
20	CX-0185C
21	CX-1461
22	CX-1554
23	CX-1555
24	CX-1711C
25	CX-1733

1	JACK GOLDBERG (June 10, 2022)
2	RX-0346
3	RX-0370
4	RX-0406
5	DANIEL McGAVOCK (June 10, 2022)
6	CX-0252
7	CX-1285
8	CX-1286
9	CX-1289
10	CX-1295
11	CX-1301
12	CX-1643
13	CX-1644
14	CX-1771C
15	Table of Admitted Exhibits for the Evidentiary
16	Hearing on June 9, 2022
17	UEYN BLOCK
18	CX-0187C
19	CX-1568
20	CX-1694
21	CX-1790C
22	CX-1806
23	SCOTT CROMAR
24	CX-1287
25	STEVE WAYDO

1	CX-1606
2	CX-1608
3	CX-1684
4	CX-1802C
5	CX-1805C
6	RX-0307C
7	BRIAN LAND
8	CX-0177
9	CX-1793C
10	CX-1800C
11	RX-0094C
12	RX-0319
13	RX-0897C
14	RX-0396C
15	MANNHEIMER
16	CX-1569
17	RX-0895
18	CPX-0191
19	MEHRA
20	RX-0087C
21	RX-0093C
22	RX-0338C
23	SARRAFZADEH
24	CX-0322bC_Resp
25	CX-0322bC_Compls

1	CX-0444
2	CX-0587C
3	CX-1375
4	RX-0023
5	RX-0035
6	RX-0041C
7	RX-0082C
8	RX-0130
9	RX-0239C
10	RX-0240C
11	RX-0241C
12	RX-0242C
13	RX-0243C
14	RX-0244C
15	RX-0245C
16	RX-0246C
17	RX-0250C
18	RX-0259C
19	RX-0260C
20	RX-0262C
21	RX-0265C
22	RX-0266C
23	RX-0267C
24	RX-0268C
25	RX-0269C

1	RX-0270C
2	RX-0271C
3	RX-0272C
4	RX-0273C
5	RX-0274C
6	RX-0275C
7	RX-0276C
8	RX-0308C
9	RX-0353
10	RX-0366
11	RX-0368
12	RX-0381
13	RX-0397
14	RX-0414C
15	RX-0458
16	ADMITTED PURSUANT TO ORDER NO. 56
17	RX-1397C
18	RX-1447C
19	
20	
21	
22	
23	
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1 C E R T I F I C A T E

2 TITLE: CERTAIN LIGHT-BASED PHYSIOLOGICAL MEASUREMENT DEVICES
3 AND COMPONENTS THEREOF

4 INVESTIGATION NO.: 337-TA-1276

5 HEARING DATE: June 10, 2022

6 LOCATION: Washington, D.C. - Remote

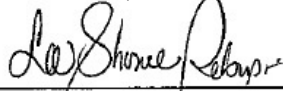
7 NATURE OF HEARING: Evidentiary Hearing

8 I hereby certify that the foregoing/attached
9 transcript is a true, correct and complete record of the
above-referenced proceedings of the U.S. International Trade
Commission.

10 Date: June 29, 2022

11 Signed:

ss//

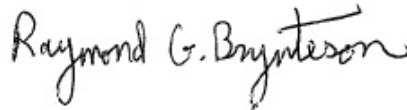


12 Signature of the Contractor or the Authorized Contractor's
13 Representative

14 I hereby certify that I am not the court reporter
15 and that I have proofread the above-referenced transcript of
the proceedings of the U.S. International Trade Commission
16 against the aforementioned court reporter's notes and
recordings for accuracy in transcription in the spelling,
17 hyphenation, punctuation and speaker identification and did
not make any changes of a substantive nature. The
foregoing/attached transcript is a true, correct and
complete transcription of the proceedings.

18 Signed:

19 ss//



20 I hereby certify that I reported the
21 above-referenced proceedings of the U.S. International Trade
Commission and caused to be prepared from my record media
22 and notes of the proceedings a true, correct and complete
verbatim recording of the proceedings.

23 Signed:

24 ss//



25